Sustainability Appraisal of the Worcestershire Waste Core Strategy: Consolidated Report

Final Report

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Worcestershire County Council

Sustainability Appraisal of the Worcestershire Waste Core Strategy: Consolidated Report

August 2012

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For and on behalf of Environmental Resources Management	
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CONTENTS

This report presents a Sustainability Appraisal (SA) of the Worcestershire Waste Core Strategy (WCS) of October 2011, in other words the WCS Publication Document as amended by the proposed changes set out in the Addendum to the Waste Core Strategy Publication Document. This is the sixth stage in an iterative SA process.

The Addendum introduces a number of changes to the WCS, which overall improve the sustainability of the WCS. The key findings from the SA of the WCS are as follows.

Support is given to the waste hierarchy across much of the WCS, and a strong emphasis is placed on mitigating and adapting to climate change and on energy efficiency and generation. This will reduce the emission of greenhouse gases from waste management activities. However, stronger encouragement could be given to prioritise recycling and composting over residual waste treatment, otherwise continued improvement beyond the targets may fail to happen.

The spatial strategy will help to limit waste transport distances by locating facilities close to the main centres of population. However, the exact effects on waste transport are uncertain, because it is not known which of the large number of areas of search will be developed for waste management purposes, nor the types or capacities of facilities that will be developed, all of which have an effect on the amount of waste transport required. Policies should require planning applications to demonstrate how a facility will be located to minimise waste miles.

The WCS emphasises the protection and enhancement of natural, built and historic assets although there is potential in the identified areas of search for adverse effects on biodiversity, air quality, historic assets, residential amenity, flood risk and open space, which should be a focus of assessment and mitigation at planning application stage.

The WCS is likely to give support to other sustainability objectives, particularly ensuring the efficient use of land, promotion of growth and innovation in the waste sector, and support for community responsibility for waste although not necessarily in Herefordshire. Promoting sustainable construction, higher energy and environmental standards in design and climate change adaptation will also support markets for new technologies.

The following recommendations are made for mitigating the adverse effects of the WCS, or for maximising opportunities for benefits.

Table 1 Mitigation Recommendations

No.	Recommendation
1	Stronger incentives should be given to prioritise recycling and composting over residual waste treatment, for example by requiring applicants for recovery facilities to demonstrate that reuse and recycling have been "maximised" rather than "optimised" in policy WCS4.
2	Policies should require planning applications to demonstrate how a facility will be located to minimise waste miles, for example in policy WCS8.
3	Applications for waste development should clearly show how impacts on flood risk, air quality, biodiversity, historic assets, residential amenity and open space will be avoided or enhancements delivered, for those sites in areas of search with constraints.
4	The WCS should promote flood risk reduction and water quality enhancement where practicable (WCS10).

1 SUMMARY AND OUTCOMES

1.1 NON-TECHNICAL SUMMARY

1.1.1 Overview

This report sets out details of the process and outcomes of a Sustainability Appraisal (SA) of the Worcestershire County Council Waste Core Strategy (WCS) of October 2011. This is the version of the WCS which has been amended by the proposed changes set out in the Addendum to the Waste Core Strategy Publication Document. The WCS will provide the framework for how all the waste streams in the county will be managed between now and 2027. Earlier work on the WCS, which was undertaken between 2005 and 2007, had been halted but WCC has recommenced the process and is proceeding towards a submission of the WCS to the Secretary of State. SA is an integral part of that process.

Under the Planning and Compulsory Purchase Act 2004 Worcestershire County Council is required to undertake an SA of Local Development Documents including the WCS. The SA must also satisfy the requirements for a Strategic Environmental Assessment (SEA) arising from the authority's obligations under the European Directive on SEA and the implementing Regulations in England and Wales.

The overall purpose of the SA is to evaluate the likely implications for sustainable development in Worcestershire of the proposed WCS and reasonable alternatives to it. The aim is to inform the plan-making process to enable the WCS to take account of the ways in which waste management might affect the economy, environment and communities in Worcestershire.

In undertaking the SA, the WCS has been tested against a series of objectives that reflect relevant sustainable development policy objectives. The WCS and a number of alternatives to policy approaches contained within it were tested to determine the potential to give rise to significant effects, in order to enable the amendment and improvement of the WCS in the light of knowledge of the potential impacts on relevant sustainable development policy objectives. As part of the iterative process of development of the WCS, recommendations for amendments have been made by the SA at various stages and incorporated into the WCS as it has developed.

The findings and recommendations reached through the SA are set out in this report, and the method by which the appraisals were undertaken is described.

1.1.2 The WCS and its Context

The overall purpose of the WCS is to provide a policy framework by which Worcestershire County Council will carry out its statutory duty to provide a

land use plan for the management of waste. In doing this, the following strategic objectives have been identified.

Box 1.1 Strategic Objectives of the WCS

Objectives Specified in Worcestershire County Council's WCS:	
WO1	To base decisions on the need to reduce greenhouse gas emissions and to be resilient to climate change
WO2	To base decisions on the principles of sustainable development by protecting and enhancing the county's natural resources, environmental, cultural and economic assets, the character and amenity of the local area and the health and wellbeing of the local people
WO3	To make driving waste up the waste hierarchy the basis for waste management in Worcestershire
WO4	To ensure that the waste implications of all new development in Worcestershire are taken into account
WO5	To enable equivalent self-sufficiency in waste management in the County by addressing the "Capacity Gap" over the life of the strategy to 2027 and safeguarding existing waste management facilities from incompatible development
WO6	To involve all those affected as openly and effectively as possible
WO7	To develop a waste management industry that contributes positively to the local economy
WO8	To direct development to the most appropriate locations in accordance with the Spatial Strategy

The following issues are covered by the detailed policies in the WCS in order to achieve the objectives set out above:

Box 1.2 Scope of WCS Policies

Summary of policies:

Presumption in favour of sustainable development

Capacity requirements for different methods of waste management and delivery milestones

Direction of facilities to the appropriate level of the geographic hierarchy and requirements for recovery facilities

Restriction of development of new landfill sites together with specific landfill gas management and restoration requirements

Direction of facilities to the appropriate land type

Conditions limiting the duration and impact of new developments connected to existing mineral or landfill sites or other temporary facilities

Ensuring no adverse effects on transport and other infrastructure

Ensuring proposals for development protect and enhance biodiversity, geodiversity and historic assets

Taking account of flood risk and impacts on water quality and flow

Promoting sustainable construction, resource-efficient development, land stability and landscaping

Taking account of landscapes, green belt and the character of the built environment

Ensuring no adverse effects on amenity and health

Ensuring proposals contribute to social and economic sustainability
Safeguarding waste management sites from other developments to ensure waste facilities are not compromised by neighbouring developments
Promoting recycling and recovery of waste from new developments

The WCS sits within a framework of other policy documents that together influence both the content of the plan and its implementation. The most important of these are:

- European Union legislation, most importantly the *Landfill Directive*, which sets binding targets for reduction in the amount of biodegradable municipal waste sent to landfill, and the *Waste Framework Directive* which implements the waste hierarchy and sets requirements for recycling and recovery;

- National legislation which is binding on WCC, principally the *Waste and Emissions Trading Act 2003* which implements the *Landfill Directive* in the UK and introduces a scheme of trading in landfill allowances;

- National waste policy which sets the framework of overarching policy objectives for Waste Local Development Documents (LDDs), including objectives such as promoting waste minimisation and implementing the waste hierarchy;

- National planning guidance which sets out details of the policy approaches which should be adopted by local and regional authorities;

- An updated *Joint Municipal Waste Management Strategy* for Herefordshire and Worcestershire, which sets out a 30-year plan for the management of municipal waste, which the WCS seeks to enable by providing the necessary planning framework;

- Worcestershire statutory plans, for example the Local Development Frameworks, which set the policy context for the content and implementation of the WCS particularly policies on the location and control of development; and

- The Worcestershire Sustainable Community Strategy and non-statutory strategies and plans, which guide the policy approach of the WCS on specific issues, but which are not binding.

A list of relevant policies, plans and programmes and a review and summary of their content is set out in *Annex A*.

1.1.3 The Current State of Sustainable Development in Worcestershire

The main issues for sustainable development in Worcestershire and which are relevant to the WCS are summarised in the following table.

Table 1.1 Key Environmental, Social and Economic Issues for Worcestershire

Issue	Key findings
Waste	It is estimated that in 2010, 1,591,000 tonnes of waste were produced in Worcestershire. Of this, 405,000 tonnes (25%) was municipal waste, 598,500 tonnes (38%) was commercial and industrial waste, and 510,500 tonnes (32%) was construction and demolition waste. 45% of municipal waste was recycled in 2009/10, compared to 40% for the whole of England. 45% of municipal waste in Worcestershire was landfilled, compared to 47% in England as a whole. In 2008, arisings of hazardous waste were approximately 46,500 tonnes per annum. Worcestershire produced 321,000 tonnes of industrial waste in 2002/03 of which 38% was recycled or re-used, and 307,000 tonnes of commercial waste of which 31% was recycled or re-used.
Climate change	In 2008, Worcestershire's CO_2 emissions were 4799Kt. These comprised: • industry and commerce, 32%; • domestic sector, 30%; • transport sector, 37%. Between 2005 and 2008, CO_2 emissions from each of these sectors declined, although their relative proportions stayed similar.
Flooding	Approximately 10% of the county is at risk of flooding, principally from the rivers Severn, Teme, Avon and Stour.
Transport	There is relatively little traffic congestion on the county's road network, but the limited number of river crossings is a key cause of congestion in Worcester. There are currently no major rail freight facilities located within Worcestershire.
Growth with prosperity for all	The employment rate for working age people in Worcestershire is 78%, which is ahead of the West Midlands (71%) and England (74%), although at lower tier level the rates vary considerably.
Participation by all	In 2008/09 all of the district councils collected recyclable materials from the kerbside of more than 93% of their households, with Redditch and Worcester providing 96% coverage and Malvern Hills and Wychavon 100%.
Technology, innovations and inward investment	The business base of Worcestershire is concentrated towards public administration, education and health with the sector accounting for 26.3% of the county's employment, which is closely followed by distribution, hotels and restaurants at 25.2% of the county's employment. Employment in banking, finance and insurance is also high in the county at 17.1%, with 16.7% employed in manufacturing.
Energy generation and use	In 2008, Worcestershire consumed 15,541GWh of energy from all sources. This is slightly less than in 2007 (16254GWh) and 2006 (16,516GWh). Current renewable energy in the county comes from landfill gas, wood fuel, biofuel, ground source heat, and solar systems. Potential additional sources include solar, biogas, energy crops, wind power and hydro-electricity.

Issue	Key findings
Natural resources (air, water and soil)	To date, 9 Air Quality Management Areas (AQMAs) have been declared in Worcestershire, due to poor air quality, with several of these having recently been declared. The AQMAs are associated with busy arterial and main roads. 10 of the county's watercourses are rated as 'Good'; 56 as 'Moderate'; 11 as 'Poor'; and 5 as 'Bad'. The quality of Worcestershire's water courses do not compare very favourably with watercourses in the wider area. The majority of soils are Grade 3 in the agricultural land classification but significant areas of Grade 1 and 2 also occur.
Access to services	Approximately 42% of areas within Worcestershire are ranked within the top 20% most deprived areas nationally in terms of their distance from a range of key local services. 47 areas (approx. 13%) are within the top 5%, and 7 areas (approx. 2%) are within the top 1%.
Landscape	The Worcestershire Landscape Character Assessment identifies and describes 23 different landscape types in the county. There are also numerous historic townscapes – including 147 conservation areas. The county contains parts of two areas designated as Areas of Outstanding Natural Beauty.
Biodiversity, flora and fauna	Worcestershire contains two Special Areas of Conservation, 11 National Nature Reserves, 25 Local Nature Reserves and 5,848ha of ancient semi-natural woodland. There are 111 Sites of Special Scientific Interest (SSSIs) in Worcestershire, of which 93.3 % were classed as 'favourable' or 'recovering' in April 2010. There are approximately 460 Special Wildlife Sites in Worcestershire, of which 29.3% are under appropriate management, and approximately 90 Regionally Important Geological/ Geomorphological Sites, of which 40.2% are under appropriate management.
Health	Male life expectancy in Worcestershire at birth is approximately 1 year below the West Midlands and UK averages, but female life expectancy is approximately 1 year above the regional and UK averages.
Provision of housing	13,742 households in Worcestershire do not have central heating, while 632 households in Worcestershire do not have their own bath/shower and toilet.
Population 1 (learning and skills)	Across Worcestershire, 28% of the population aged between 19 andretirement age was qualified to Level 4 or higher in 2008. This is below the average for England (31%), but higher than for the West Midlands (26%). Percentages are highest in Worcester (37%) and Malvern Hills (35%) and lowest in Wyre Forest (22%) and Redditch (23%).
Cultural heritage, built design and archaeology	There are nearly 6,000 listed buildings in the county, together with 485 scheduled ancient monuments, 147 conservation areas, and over 22,000 entries on the County Historic Environment Record. There are at least 47 heritage assets classified as being 'at risk' in Worcestershire, comprising 4 Conservation Areas; 28 Scheduled Monuments; 2 Registered Parks & Gardens; and 13 Buildings listed at Grades I and II*.
Population 2 (anti social behaviour, crime, litter and graffiti)	Between April 2009 and March 2010, 33,790 crimes were recorded in Worcestershire. Urban areas saw the highest crime rates, with Worcester City having the highest (8 offences per 1,000 people).
Material assets (including land use & local amenity)	Construction aggregates make up most of the mineral output of the county. Worcestershire provides about 1 million tonnes or 7% of the annual apportionment of aggregates for the West Midlands region. Sand, gravel, clay, moulding sand and limestone are the materials being commercially exploited in the foreseeable future. The enjoyment of the countryside is a key pull factor for many visitors to the county. About a quarter of the county's land is designated as green belt.

1.1.4 Areas Likely to be Significantly Affected by the WCS

The appraisal has considered the areas likely to be significantly affected by implementation of the WCS, in order to identify the sustainability characteristics of those areas. In reality, the effects of implementation of the plan can be considered on two levels.

First, the overall effects will be spread throughout the county; because waste arises almost everywhere, waste transport will occur throughout the county and some of the impacts of recycling, recovery and disposal activities will be widespread and borne by all. In this case, the relevant sustainability characteristics are those set out in the baseline above and in *Annex A*.

On another level, some of the effects of the management of waste will occur in the vicinity of waste management sites. Areas of search within which development will be regarded as acceptable in principle have been identified, and the 57 areas of search are listed in the WCS. An assessment has been made of the environmental and sustainability conditions in each of the areas of search. The key characteristics of those areas are summarised in *Annex F*. More detailed information on these characteristics is provided in a background document to the WCS, *Identifying Areas of Search*(1).

1.1.5 Existing Characteristics and Problems Relevant to the WCS

Worcestershire has a number of characteristics and 'problems' (2) which are relevant to the WCS. These are summarised below and described in detail in the baseline in *Annex B*.

Worcestershire recycles a higher than average amount of municipal waste and also landfills slightly less than average, although 45% of municipal solid waste was still landfilled in 2009/10. Commercial/industrial and construction/demolition wastes are each larger waste streams than the municipal solid waste stream although data on how these waste streams are managed is poor.

Although there is relatively little traffic congestion on the county's road network, there are hotspots in and around the main towns and particularly around Worcester.

Air quality is generally good throughout the county although there are some areas of poor air quality, largely due to transport emissions, and the number of AQMAs in Worcestershire has increased recently.

(1) *Worcestershire Waste Core Strategy Background Document: Identifying Areas of Search*, Worcestershire County Council, January 2011
(2) The SEA Directive requires the report to identify relevant problems.

Construction aggregates make up most of the mineral output of the county. Worcestershire provides about 1 million tonnes or 7% of the annual apportionment of aggregates for the West Midlands region.

About 10% of the land area of the county is subject to flood risk, particularly from the rivers Severn, Teme, Avon and Stour.

The County contains parts of two areas designated as Areas of Outstanding Natural Beauty. There are also numerous historic townscapes including 147 conservation areas, and about a quarter of the county is designated as green belt. There are at least 47 heritage assets classified as being 'at risk' in Worcestershire.

Worcestershire contains or is near to some areas which are designated as internationally important for biodiversity, including Special Protection Areas and Special Areas of Conservation designated pursuant to Directives 79/409/EEC (1) and 92/43/EEC (2). The sites are all subject to pressures which are described in more detail later in the report.

1.1.6 Taking Account of Relevant Sustainable Development Objectives

A long list of international, national, regional and county level policy documents was considered to assess each one's relevance to sustainable development, and particularly in the context of the scope of the WCS. The list of the documents considered and those reviewed is given in *Annex A*.

The review identified the key sustainable development policy objectives contained in each document, and *Table 2.1* and *Annex A* set out the environmental, economic and social objectives which were identified. These objectives set the policy context for the WCS and with which it must conform. They were used in undertaking the SA as a framework against which to assess the likely environmental and sustainability effects of the WCS. The review also identified any relevant targets which have been set.

The sustainability baseline data was also analysed to identify the key sustainability issues in the county which are relevant to the WCS. The list of sustainable development objectives was then reviewed to ensure that all key issues would be covered by the appraisal framework and therefore that the WCS would be appraised for its effect on these issues.

1.1.7 The Likely Significant Effects of the WCS

The various elements of the WCS and reasonable alternatives were assessed against the appraisal framework, and their likely sustainability effects identified and described. The findings and conclusions of these individual elements were then drawn together to make an assessment of the overall

(1) Directive 79/409/EEC on the conservation of wild birds
(2) Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

effects of the WCS as a whole, in light of the appraisal of the vision and strategic objectives for the WCS (see *Section 5*), the appraisal of the policies (see *Section 6*) and the appraisal of the preferred options and reasonable alternatives (see *Section 7*). *Table 1.2* sets out the results of this synthesis, and draws conclusions about the likely significant overall effects of the WCS taken as a whole.

Table 1.2 Summary of Likely Significant Effects of WCS

SA objectives	Assessment	Comments
1. Manage waste in accordance with the waste hierarchy	+	Support is given to the waste hierarchy across the vision, objectives and policies of the WCS, prioritising recovery of resources over landfill. However, stronger encouragement could be given to prioritise recycling and composting over other forms of recovery, otherwise continued improvement beyond the recycling targets may fail to happen.
2. Reduce causes of and adapt to the impacts of climate change.	+/?	The WCS will promote the reduction of greenhouse gas emissions through the facilitation of new developments to divert waste from landfill and the recovery of resources including energy and recovery of landfill gases. Emissions from waste transport may also be reduced by locating facilities near to the main settlements thereby reducing waste transport however this depends on the types, capacities and locations of facilities which are unknown. Climate change adaptation is promoted by the WCS.
3. Avoid flood risk	+/?	Development management policy is likely to ensure flood risk is not increased although some of the identified areas of search have increased flood risk associated with them and a more detailed Flood Risk Assessment of developments in these areas will be required at planning application stage.
4. Reduce the need to travel and promote sustainable travel	?	By increasing recycling and recovery, the policies may increase the need for waste transport by requiring multiple handling of waste streams. However, the spatial strategy aims to locate facilities near to the larger centres of population which will help to limit waste transport distances although there will be longer transport distances for municipal waste from Herefordshire than if some facilities were located in Herefordshire. It is not possible to estimate the amount of waste transport required to implement the WCS because it is not known which of the large number of areas of search might be developed for waste management purposes, nor the type or capacity of facility which might be developed, all of which have an effect on the amount of waste transport required. Alternative transport modes are encouraged, but the WCS should require planning applications to demonstrate how a facility will be located to minimise waste miles.
5. Develop a knowledge-driven economy	+	The WCS supports the development of waste management facilities, encouraging the growth and development of the waste sector in Worcestershire and increasing its economic contribution.
6. Encourage participation and	+/-	The facilitation of the development of new recycling and recovery facilities in Worcestershire will indirectly support increased responsibility by its communities for the waste

SA objectives	Assessment	Comments
responsibility		they produce, although not necessarily for Herefordshire's communities. The WCS explicitly requires community participation in waste developments.
7. Promote new technologies	+	By facilitating the development of sites to divert waste from landfill and through support for climate change mitigation and adaptation and efficient use of energy, water and resources, the WCS will help to support the development of new, resource-efficient technologies for managing waste.
8. Promote energy efficiency and renewable/low carbon generation	+	The WCS gives a strong emphasis on increasing energy efficiency by promoting energy recovery and renewable generation from landfill gas, and requiring waste developments to be energy efficient. The impact of the WCS on the use of energy for waste transport is unknown, although this is likely to be significantly smaller than the energy impact of the facilities themselves.
9. Protect and enhance water, soil and air.	+	Policy requires the avoidance of adverse impacts on air, water and soil. Promotion of water efficiency, restricting greenfield development and using landfill to restore derelict land will also support the objective.
10. Improve quality and access to services	+	Requiring developers to provide facilities for recycling and composting in new developments will help to improve access to recycling services.
11. Safeguard and strengthen landscape quality	+	The WCS explicitly requires the protection and enhancement of landscapes and local character therefore significant adverse effects are unlikely.
12. Conserve and enhance biodiversity and geodiversity	+/-	The WCS explicitly requires the protection and enhancement of biodiversity and geodiversity. However, five of the identified areas of search are very close to Special Wildlife Sites and therefore adverse impacts are likely at these sites; assessment and mitigation of effects should be a particular requirement for planning applications at these sites. For nine of the areas of search, the Habitats Regulations Assessment could not conclude no likely significant effects on European nature conservation sites, and therefore further assessment is required for any planning application within those areas.
13. Improve health and well being	0	Health impacts from the WCS are unlikely if facilities are operated in accordance with good practice standards.
14. Provide decent affordable housing for all	+/?	The zones in the geographic hierarchy are close to major settlements, and some of the identified areas of search are close to residential areas. Significant effects on the quality of local residential environments are therefore possible. However, policy requires developments to have no adverse effects on local amenity, therefore significant effects should be avoided. The significance and mitigation of possible effects on residential amenity should be taken into particular account in planning applications in these areas of search.
15. Raise skills levels	+	By facilitating the development of new waste management facilities and technologies, the policy may help to raise skills levels, although this is unlikely to be significant for the county's workforce as a whole.

SA objectives	Assessment	Comments
16. Conserve and enhance the historic and built environment	+/?	The WCS requires developments to contribute positively to built and historic assets, and promotes good design and resource-efficient developments. The methodology to identify areas of search takes into account designations of historical value and therefore significant effects are unlikely in the main. However, four of the areas of search are near to designated assets, including one which is within a conservation area. Therefore adverse effects are possible at these sites and assessment and mitigation of effects should be a particular requirement for planning applications in these areas of search.
17. Reduce crime and antisocial behaviour	+	Educating communities about sustainable waste management may help to reduce littering and fly tipping although this will not be significant for crime levels in Worcestershire overall.
18. Ensure efficient use of land	+/-	The WCS requires developments to be in existing buildings or on previously developed sites, which will help to maximise reuse and avoid impacts on open spaces. It also protects the green belt from inappropriate development. However, some adverse effects are possible on greenfield/agricultural/green belt land although the effect for the county as a whole is unlikely to be significant. The WCS is also likely to help increase the supply of secondary aggregates and reduce demand for virgin mineral resources. Landfill to restore previously developed or derelict land is promoted, and to provide open space for communities.

1.1.8 Selecting Alternatives

In developing the WCS, several issues have been considered where there are a number of options available for approaches to be taken. All of the options have been appraised at earlier stages of the WCS process and reported in previous versions of the SA Report. *Sections 7.2* to 7.6 explain in detail the evolution of options/alternatives, how the SA has appraised them and where the published results of that appraisal can be found.

1.1.9 Mitigation of Effects

The following recommendations are made for amendments to the WCS in order to mitigate the predicted adverse effects or to maximise opportunities to capture benefits.

Table 1.3 Mitigation Recommendations

No.	Recommendation
1	Stronger incentives should be given to prioritise recycling and composting over residual waste treatment, for example by requiring applicants for recovery facilities to demonstrate that reuse and recycling have been "maximised" rather than "optimised" in policy WCS4.
2	Policies should require planning applications to demonstrate how a facility will be located to minimise the distance that waste is transported, for example in policy WCS8.
3	Applications for waste development should clearly show how impacts on flood risk, air quality, biodiversity, historic assets, residential amenity and open space will be avoided or enhancements delivered, for those sites in areas of search with constraints.
4	The WCS should promote flood risk reduction and water quality enhancement where practicable (WCS10)

1.1.10 Monitoring Recommendations

The SA makes recommendations for monitoring, with suggested indicators to enable WCC to monitor the likely significant impacts of the WCS. This also includes a number of indicators to allow WCC to identify unforeseen adverse effects in order to be able to take appropriate remedial action.

1.2 STATEMENT ON THE DIFFERENCE THE PROCESS HAS MADE TO DATE

As an iterative process, the SA has made recommendations for improvements to the WCS at several stages during its development. These have influenced the emerging WCS as summarised below.

1.2.1 Influence at Refreshed Issues and Options Stage

An appraisal of the Refreshed Issues and Options document(1) was undertaken previously. A number of recommendations were made in an Initial SA Report(2) produced in April 2009 which indicated how the sustainability of the WCS could be increased in carrying forward its development from the Refreshed Issues and Options stage. A number of these recommendations have been followed by WCC, and the subsequent Emerging Preferred Options document incorporated the following as a result:

- The Spatial Portrait included references to climate change mitigation and adaptation, quality of landscape, habitats and species of nature conservation importance and historic assets.

(1) Waste Core Strategy for Worcestershire Refreshed Issues and Options Consultation – 'How Should We Proceed'?, Worcestershire County Council, September 2008

(2) Initial Sustainability Appraisal of Issues and Options for Waste Core Strategy for Worcestershire, ERM, April 2009

- The Vision emphasised that most waste will be recycled and that waste management activities will be resource-efficient.

- The Emerging Preferred Option document referred to the following strategies as being relevant to waste development:
    - Catchment Management Plans,
    - the Local Transport Plan,
    - the Air Quality Strategy for Herefordshire and Worcestershire,
    - AONB Management Plans and
    - the Worcestershire Biodiversity Action Plans.

- Draft policy in the Emerging Preferred Options promotes energy efficiency.

1.2.2 Influence at Emerging Preferred Options Stage

The SA of the Emerging Preferred Options document(1) made another series of recommendations, and the following were reflected in the First Draft Submission WCS as a result:

- The WCS vision emphasises the importance of reuse of waste materials.

- The WCS vision promotes climate change adaptation.

- The WCS vision promotes good design.

- The requirement for waste developments to demonstrate water efficiency has been inserted into policy WCS2.

- Avoidance of light pollution and impacts on congestion have been added to policy WCS4.

- Generation of combined heat and power (CHP) wherever practicable is required in supporting text to policy WCS5.

- The WCS now commits to high recycling levels of C&D waste

- The supporting text to policy WCS6 promotes restoration which takes account of recreational value.

1.2.3 Influence at First Draft Submission Stage

Some of the recommendations from the SA of the First Draft Submission WCS(2) were incorporated into the WCS Publication Document, as follows:

(1) *Sustainability Appraisal of Emerging Preferred Options for the Waste Core Strategy for Worcestershire*, ERM, November 2009
(2) *Sustainability Appraisal of First Draft Submission of the Waste Core Strategy for Worcestershire*, ERM, November 2010

- Higher targets for the recycling of municipal waste have been incorporated into the WCS.

- The WCS now indicates the amount of capacity sought at different levels of the waste hierarchy for different waste streams.

- Policies require developments to use alternatives to road transport where practicable.

- The WCS now includes a mechanism whereby certain types of development are directed to upper levels of the geographic hierarchy.

1.2.4 Influence at Publication Document Stage

In response to the informal findings of the SA of a draft Submission WCS, the Submission WCS (termed the WCS Publication Document) incorporated some recommendations for mitigation:

- Policy in the WCS now requires avoidance of adverse impacts on health.

- The WCS includes Listed Buildings and Conservation Areas in the list of historic assets to be protected.

1.2.5 Influence at Proposed Changes Stage

Several amendments were made to the WCS by the Addendum to the WCS Publication document which are in direct response to recommendations for mitigation made by the SA of the WCS Publication Document:

- the addition of a recycling target for C&I waste;

- the addition of supporting text to encourage reduction of the need to transport waste;

- amendment to the supporting text referencing the role of transport in greenhouse gas emissions;

- the inclusion of a reference in supporting text to onsite recycling of C&D waste;

- requiring protection and enhancement of local characteristics in policy WCS12 rather than that they only be taken into account.

2 INTRODUCTION

2.1 BACKGROUND

The Waste Core Strategy (WCS) for Worcestershire provides the framework for how all the waste streams in the County will be managed between now and 2027. Earlier work on the WCS which was undertaken between 2005 and 2007 had been halted, but Worcestershire County Council (WCC) subsequently recommenced the process. The WCS has now been subject to an Examination in Public and has been declared sound by the Inspector. WCC is now in a position to adopt the WCS, and this is expected to take place in November 2012.

The first stage in the process was to redraft an Issues and Options document and to publish it for consultation. The consultation on the Issues and Options document took place between September and December 2008. Responses to the consultation were considered by WCC in developing an Emerging Preferred Options Report for the WCS, which was drafted during the summer and autumn of 2009 and issued for public consultation in late 2009. WCC then produced a subsequent document in the process, termed the 'First Draft Submission', taking account of views expressed in the consultation on the Emerging Preferred Options Report. The First Draft Submission was issued for public consultation between 28 September and 9 November 2010. Following this, a WCS Publication Document was produced in March 2011 and issued for public consultation between March and May 2011. In response to comments received in the consultation, WCC proposed to make a number of amendments to the Publication Document, which were set out in an Addendum to the WCS Publication Document produced in September 2011. Further public consultation took place on the Addendum beginning in October 2011. The WCS was then submitted to the Secretary of State, and an Examination in Public took place during March 2012. Following the Examination, WCC proposed a further series of amendments to the WCS in response to issues arising and is now proceeding to formal adoption.

The *Planning and Compulsory Purchase Act 2004* requires a sustainability appraisal (SA) of local Development Plan Documents (DPDs) to be carried out, including Waste DPDs such as the WCS. Under the *Environmental Assessment of Plans and Programmes Regulations 2004,* the WCS must also be subject to a Strategic Environmental Assessment (SEA) before it is adopted. Government guidance indicates that an SA can and should be undertaken which also meets the requirements of SEA. Therefore, as part of the process of developing the WCS, it has been subject to an SA incorporating SEA.

SA is to be used as a tool for integrating environmental and sustainability considerations into the preparation of the WCS, by considering the effects of implementing the WCS during its preparation and before its adoption. The

SA is required systematically to assess the WCS against a framework of environmental, economic and social objectives. It should identify, describe and evaluate the likely significant effects of implementing the plan or strategy, and reasonable alternatives taking into account the objectives and the geographical scope. These issues must be taken into account in the preparation of the WCS.

WCC commissioned Environmental Resources Management Ltd (ERM) to support it in the process of developing the WCS by undertaking an SA of the WCS as it emerges and develops. An initial appraisal of the Issues and Options Report was undertaken during March and April 2009, and the findings and recommendations were taken into account by WCC in developing the Emerging Preferred Options Report. Subsequently, an SA was carried out on the Emerging Preferred Options Report, the findings of which were considered by WCC in developing the First Draft Submission WCS. Then a formal SA was carried out of the First Draft Submission WCS in November 2010, on the version that was issued for public consultation. The conclusions and recommendations of the SA of the First Draft Submission WCS were taken into account by WCC in developing the Submission version of the WCS (termed the WCS Publication Document). The WCS Publication Document was then subject to a formal SA in February 2011. As a result of comments received in the public consultation on the WCS Publication Document, WCC proposed to make a number of amendments to the WCS Publication Document, as set out in the Addendum to the WCS Publication Document produced in September 2011. A formal SA was carried out on the WCS as amended by the Addendum during September 2011. In response to further proposed changes to the WCC at the time of the Examination in Public, a short review was made of the sustainability implications of the proposed changes and a paper published setting out the conclusions of this review. WCC is now proposing to incorporate these and other changes to the WCS, and therefore a final SA has been undertaken of the final consolidated version of the WCS prior to its adoption.

The SA has identified the key sustainability implications of the WCS, with the aim of informing WCC about the likely effects and enabling it to understand the implications. This document sets out the results of the SA and highlights the main implications of the WCS as it stands at August 2012.

2.2 PROCESS

2.2.1 Scoping

The first step in the SA work was a scoping stage to identify the sustainability context for waste management and planning in Worcestershire. This stage of the SA was undertaken by WCC in-house.

The scoping stage involved the collection of a wide range of baseline data covering economic, social and environmental issues in order to provide a picture of the current sustainability conditions in Worcestershire and to identify emerging trends where possible. The baseline data was analysed to identify the key sustainability issues for the county, within the particular context of waste management and planning.

In tandem with the baseline data collection and analysis, all relevant policies, plans and programmes were identified with a view to helping to establish the key sustainability issues for Worcestershire that could be affected by the WCS. The policy documents identified were reviewed to extract information to inform the issues, and to identify sustainable development policy objectives with which waste management and planning in the county must or should conform.

A framework of policy objectives was then developed for the appraisal. The objectives are supported by decision-making criteria in the form of questions under each objective. The emerging WCS has been appraised against this framework to assess the extent to which it supports sustainable development policy objectives for Worcestershire, taking into account the specific questions which are posed. The framework was based on the existing Worcestershire Joint SA Framework, and also informed by:

- Review of the issues of relevance to Worcestershire as described within key policy documents, with particular regard being given to the Community Strategy and Regional Sustainable Development Framework;
- Review of the sustainability characteristics and issues; and
- Analysis of the opportunities arising from the baseline data.

The results of the scoping stage were set out in a Scoping Report which was issued to the three statutory agencies for consultation from 29 September to 7 November 2008.

Responses were received from the Environment Agency, English Heritage and Natural England. The main comments related principally to additional data to be included in the baseline, and additional documents for the policy review. These particularly covered issues of flood risk, water quality, biodiversity, heritage and landscape. However, there was also a request to note water as a significant issue for waste management in Worcestershire, and requests to amend the wording of the objectives on historic environment and biodiversity to expand their scope. The Environment Agency also identified a need to undertake a Strategic Flood Risk Assessment (SFRA) for Worcestershire as a whole in the particular context of the WCS. Consultation comments were taken on board and further scoping work was undertaken to ensure that the relevant key issues and policies are reflected in the framework. Further work on flood risk assessment was progressed through District-level SFRAs.

The objectives and decision-making criteria, as amended following the Scoping Report consultation, are set out in *Table 2.1*. This is the appraisal framework that has been used to appraise the WCS.

Table 2.1 SA Objectives and Decision-Making Criteria

Theme	Objective	Decision-Making Criteria
1. Waste	Manage waste in accordance with the waste hierarchy: 1) reduce, 2) reuse, 3) recycling and composting, 4) recovery, 5) disposal.	1a. Are opportunities to increase recycling encouraged in your plan? 1b. Will your plan reduce the production of waste and manage waste in accordance with the waste hierarchy?
2. Climate Change	Reduce causes of and adapt to the impacts of climate change.	2a. Will your plan reduce emissions of greenhouse gases? 2b. Does your plan promote patterns of spatial development that are adaptable to and suitable for predicted changes in climate? 2c. Does your plan promote measures to mitigate causes of climate change?
3. Flooding	Ensure inappropriate development does not occur in high-risk flood-prone areas and does not adversely contribute to fluvial flood risks or contribute to surface water flooding in all other areas.	3a. Does your plan protect the floodplain from inappropriate development? 3b. Does your plan reduce the risk of flooding in existing developed areas? 3c. Does your plan promote Sustainable Drainage Systems (SUDs)? 3d. Does your plan promote patterns of spatial development that are adaptable to and suitable for predicted changes in climate?
4. Traffic and transport	Reduce the need to travel and move towards more sustainable travel patterns.	4a. Will your plan reduce the need to travel? 4b. Will your plan provide opportunities to increase sustainable modes of travel? 4c. Does your plan focus development in existing centres, and make use of existing infrastructure to reduce the need to travel?
5. Growth with prosperity for all	Develop a knowledge-driven economy, the infrastructure and skills base whilst ensuring all share the benefits, urban and rural.	5a. Will your plan contribute towards urban and rural regeneration? 5b. Will your plan provide opportunities for businesses to develop and enhance their competitiveness? 5c. Will your plan support the shopping hierarchy? 5d. Will it help to improve skills levels in the workforce?
6. Participation by all	Provide opportunities for communities to participate in and contribute to the decisions that affect their neighbourhood and quality of life, encouraging pride and social responsibility in the local community.	6a. Do your plan proposals incorporate consultation with the local communities? 6b. Does your plan promote wider community engagement and civic responsibility?
7. Technology, innovation and inward investment	Promote and support the development of new technologies, of high value and low impact, especially resource efficient technologies and environmental technology initiatives.	7a. Does your plan encourage innovative and environmentally-friendly technologies? 7b. Does your plan promote and support the development of new technologies, of high value and low impact?
8. Energy generation and use	Promote energy efficiency and energy generated from renewable energy and low carbon sources.	8a. Will your plan encourage opportunities for the production of renewable and low-carbon energy?

		8b. Will your plan promote greater energy efficiency?
9. Natural resources	Protect and enhance the quality of water, soil and air.	9a. Will your plan improve or maintain air quality? 9b. Will your plan provide opportunities to improve or maintain water quality? 9c. Will your plan encourage measures to improve water efficiency in new development, refurbishment and redevelopment? 9d. Will your plan provide opportunities to improve or maintain soil quality?
10. Access to services	Improve the quality of, and equitable access to, local services and facilities, regardless of age, gender, ethnicity, disability, socio-economic status or educational attainment.	10a. Will your plan enhance the provision of local services and facilities? 10b. Will your plan contribute to rural service provision across the County? 10c. Will your plan enhance accessibility to services by public transport?
11. Landscape	Safeguard and strengthen landscape character and quality.	11a. Will your plan safeguard and strengthen landscape character and quality?
12. Biodiversity, geodiversity, flora and fauna	Conserve and enhance Worcestershire's biodiversity and geodiversity and ensure networks of habitats are conserved and enhanced.	12a. Will your plan help to safeguard the County's biodiversity and geodiversity? 12b. Will your plan provide opportunities to enhance local biodiversity/ geodiversity in both urban and rural areas? 12c. Will your plan protect sites and habitats designated for nature conservation? 12d. Will your plan help to achieve targets set out in the Biodiversity and Geodiversity Action Plans?
13. Health	Improve the health and well being of the population and reduce inequalities in health.	13a. Will your plan improve access to health facilities across the County? 13b. Will your plan help to improve quality of life for local residents? 13c. Will your plan promote healthier lifestyles? 13d. Does your plan mitigate against noise pollution? 13e. Does your plan mitigate against light pollution?
14. Provision of housing	Provide decent affordable housing for all, of the right quality and tenure and for local needs, in clean, safe and pleasant local environments.	14a. Will your plan provide opportunities to increase affordable housing levels within urban and rural areas of the County? 14b. Will your plan provide affordable access to a range of housing tenures and sizes? 14c. Does your plan seek to provide high quality, well-designed residential environments? 14d. Does your plan provide opportunities for the construction of sustainable homes?
15. Population (learning and skills)	Raise the skills level and qualifications of the workforce.	15a. Will your plan provide opportunities to further develop educational and attainment facilities within the County?
16. Cultural heritage, built design and archaeology	Conserve and enhance the historic and built environment and seek well-designed, resource efficient, high quality built environment in new development proposals which respects local character and distinctiveness.	16a. Does your plan provide opportunities for sustainable construction? 16b. Will your plan preserve, protect and enhance conservation areas, listed buildings, archaeological remains, historic parks and gardens and their settings, and other features and areas of historic and cultural value? 16c. Will your plan help to safeguard the County's listed, locally-listed and other historic

		buildings? 16d. Does your plan improve the quality of the built environment?
17. Population (antisocial behaviour, crime, litter and graffiti)	Reduce crime, fear of crime and antisocial behaviour.	17a. Does your plan seek to provide high quality well-designed environments? 17b. Does your plan promote wider community engagement and civic responsibility? 17c. Does your plan promote mixed development that encourages natural surveillance?
18. Material assets	Ensure efficient use of land through safeguarding of mineral reserves, the best and most versatile agricultural lands, land of green belt value, maximising use of previously developed land and reuse of vacant buildings, where this is not detrimental to open space and biodiversity interest.	18a. Will your plan safeguard the County's mineral resources? 18b. Will your plan help to protect the County's agricultural land from adverse developments? 18c. Will your plan preserve the openness of the green belt? 18d. Will your plan protect and enhance the County's open spaces of recreational and amenity value? 18e. Does your plan provide opportunities for sustainable construction? 18f. Will your plan maximise the use of previously developed land?

2.2.2 *Issues and Options*

The Issues and Options document was developed by WCC and issued for public consultation from September to December 2008. Following this, WCC commissioned ERM to undertake the SA of the emerging WCS, which began with an Initial Appraisal of the Issues and Options document between March and April 2009.

The following issues and options were assessed in the Initial Appraisal:

- Geographic or locational issues to be considered in the spatial portrait for Worcestershire;
- The draft Vision statement;
- Guiding principles for the WCS;
- Draft local objectives for the WCS;
- Monitoring implementation of the WCS;
- Whether and how to allocate C&I and C&D capacity requirements to the individual lower tier authorities;
- Factors to consider in protecting the environment, health, employment and amenity;
- Future plans and strategies of spatial relevance in Worcestershire;
- Options for the approach to green belt;
- Options for focusing development in urban or rural locations;
- Options for the approach to commissioning small or large facilities;
- Options for whether to prioritise centralised or dispersed facilities;
- Options for quantities of waste to be managed at different levels of the waste hierarchy; and
- Whether to specify waste management technologies, or to identify broad locations or sites and broad types of suitable uses.

The findings and recommendations from the Initial Appraisal were set out in an Initial SA Report(1) that was submitted to WCC in April 2009. The conclusions of this report were taken into account by WCC in developing the Emerging Preferred Options.

2.2.3 *Emerging Preferred Options*

The Emerging Preferred Options document was developed during the summer and autumn of 2009. A first draft was produced in September 2009, which was subject to SA. The document proposed a vision and objectives for the WCS and set out a number of draft policies. It also posed a series of questions asking for comments on a range of issues, and in some cases identified preferred options in response to the issues. However, for some issues the options were still to be developed and a preferred option yet to emerge.

(1) *Initial Sustainability Appraisal of Issues and Options for Waste Core Strategy for Worcestershire*, ERM, April 2009

For some of the issues and options that were raised in the Emerging Preferred Options document, it was not considered useful to appraise them for sustainability implications, as there were no clear sustainability issues involved. This particularly applied to the issue of how much of the different types of waste is likely to arise over the plan period.

However, for other aspects of the emerging preferred options, it was clear that there were sustainability implications around the choice of preferred option, and therefore the SA assessed each of the relevant elements to identify the likely sustainability effects arising.

The following aspects of the Emerging Preferred Options document were subject to SA:

- vision;
- objectives;
- draft policies;
- whether to locate facilities in urban or rural areas ;
- whether to promote centralised or dispersed facilities;
- whether to require large or small facilities;
- approach to permitting development in the green belt;
- locational strategy for MSW, C&I, C&D;
- how to allocate facilities to the locational hierarchy;
- capacity needs for MSW;
- capacity needs for C&I waste;
- capacity needs for C&D waste; and
- capacity needs for hazardous waste.

The detailed results of the appraisal and key findings and recommendations were set out in an SA Report(1) to WCC.

2.2.4 First Draft Submission

The First Draft Submission WCS was developed during early and mid 2010, During its development the First Draft Submission was subject to an 'Interim SA' which was not intended to be a full SA but sought to update the findings of the SA of the Emerging Preferred Options in order to inform the development of the First Draft Submission. The Interim SA was undertaken in-house by WCC staff. An Interim SA Report(2) was issued for public consultation alongside the First Draft Submission WCS from 28 September to 9 November 2010.

Following publication of the First Draft Submission and Interim SA, WCC commissioned ERM to undertake a full SA of the First Draft Submission WCS, with the aim of informing the development of the WCS Publication

(1) *Sustainability Appraisal of Emerging Preferred Options for the Waste Core Strategy for Worcestershire*, ERM, November 2009

(2) *Waste Core Strategy First Draft Submission Report Interim Sustainability Appraisal*, Worcestershire County Council, September 2010

Document. The full SA of the First Draft Submission WCS appraised the following elements of the First Draft Submission:

- vision;
- objectives; and
- draft policies.

A number of further alternatives or options were considered in addition to those considered at the Issues and Options stage and Emerging Preferred Options stage, specifically the following in relation to the locational strategy:

- approach to directing development;
- approach to scale of locations;
- approach to allocating land;
- approach to proximity and connectivity; and
- allocating capacity to settlement hierarchy.

The detailed results of the appraisal and key findings and recommendations were set out in an SA Report(1) to WCC.

2.2.5 Submission WCS

The Submission WCS (termed the WCS Publication Document) was developed between November 2010 and February 2011. A first draft was produced in January 2011, which was subject to SA. The document proposed a vision and objectives for the WCS and set out a number of draft policies embodying the approach to development management and the locational strategy. Informal findings of this SA of the January draft were submitted to WCC in February 2011.

Following the January draft, a final version of the WCS Publication Document was produced in late February 2011. The full formal SA of the WCS Publication Document was carried out in early March 2011. The WCS Publication Document contained a vision, objectives and policies for the WCS. It also adopted the preferred options on a number of issues previously considered in earlier drafts of the WCS, in most cases largely as per the approach taken in the First Draft Submission WCS. However, for some issues relating to the spatial strategy, different preferred options were adopted, although these were also options previously considered. In addition, the approach to hazardous waste was amended, for which options were appraised in the SA Report. The findings of this SA were set out in an SA Report[2] to WCC.

(1) *Sustainability Appraisal of the First Draft Submission of the Waste Core Strategy for Worcestershire*, ERM, November 2010

(1) [2] *Sustainability Appraisal of the Worcestershire Waste Core Strategy Submission Document*, ERM, March 2011

2.2.6 *Addendum to WCS Publication Document*

Following the public consultation on the WCS Publication Document, a number of amendments were proposed to the WCS Publication Document, as set out in the Addendum to the WCS Publication Document produced by WCC in September 2011. The document proposed a large number of amendments to address several issues which had been raised by consultees.

The full formal SA[1] of the WCS Publication Document as amended by the Addendum was carried out in September 2011.

2.2.7 *Proposed Changes March 2012*

Following the Examination in Public (EiP) held during March 2012, WCC proposed a number of amendments to the draft WCS in response to questions and comments made by the Inspector and other participants at the EiP. The SA undertook a review of these proposed changes during March 2012 to assess the implications for sustainability. Given the limited scope of these changes, and the absence of a further full public consultation stage, it was inappropriate to undertake a further full SA and reissue an amended full SA Report. However, a short paper[2] was published in April 2012 that set out the findings of the assessment of the sustainability of the proposed changes.

2.2.8 *Proposed Changes April 2012*

On 20th April 2012, the Inspector advised WCC to consider including an additional policy in the Waste Core Strategy regarding the application of the "Presumption in Favour of Sustainable Development" as set out in the National Planning Policy Framework. In response, WCC proposed a new policy on the Presumption in Favour of Sustainable Development and other minor changes to the Waste Core Strategy for clarity and consistency. WCC also published a statement[3] on the implications of the new policy for the SA.

2.2.9 *Final Version of WCS*

In August 2012, WCC drafted the final version of the WCS for adoption by WCC which incorporates all previous proposed changes and amendments to the WCS.

This final SA Report sets out the full detailed results of the SA of the Adoption WCS and a summary of the main findings is given in the main text of this report in *Sections 5* to *8*.

[1] *Sustainability Appraisal of the Worcestershire Waste Core Strategy Submission Document Addendum*, ERM, September 2011

[2] *Review of Sustainability of the Proposed Changes to the Worcestershire Waste Core Strategy*, ERM, March 2012

[3] *Statement on implications of "Policy WCS Additional: Presumption in favour of sustainable development" on Sustainability Appraisal and Habitats Regulations Assessment*, WCC, April 2012

2.2.10 Methodology

The appraisal determined the likely effects arising from the WCS. This applied largely to the vision, objectives and policies, to an additional option not previously considered by the SA and to areas of search. This was done by assessing each element of the WCS against the appraisal objectives in turn, using the decision-making criteria identified, and making a largely qualitative assessment, with reference also to the baseline data from the Scoping Report.

In reporting the results of these assessments, the following symbols have been used to indicate the broad nature of the predicted effect:

+	effect likely to be positive
-	effect likely to be negative
0	no significant effect
?	effect unknown
Ø	not relevant

Multiple symbols have been used (e.g. ++) to indicate a different scale of impact relative to other options, in other words where the impacts of an option are *substantially* better or worse than others.

The effects were also rated for their significance in terms of the importance for achieving each appraisal objective. Effects were rated as high, medium or low, taking account of a number of factors. The factors were:

- the expected scale of the effects or the degree to which the effects are likely to contribute to the achievement of the SA objective in the county overall;
- the certainty or probability that the effect is likely to occur as a consequence of the WCS;
- whether the effects would be permanent or reversible;
- whether the effect will occur as a direct result of the WCS or not, in other words whether the WCS is key for achieving or controlling effects;
- whether the effect is more strongly dependent on other interventions or other factors; and
- how important the objective is to the scope of the WCS.

The assessment of significance is indicated in the tables by colour:

	Not relevant
	No significance
	Medium significance
	High significance

In some instances, the methodology has relied for the assessment of effects on other documents which have been produced for the development of the WCS, in particular for assessing the likely impact of areas of search, the SA has drawn on information provided in:

- the Habitats Regulations Assessment (March 2011);
- the Habitats Regulations Assessment Addendum (September 2011); and
- the Background Document: Identifying Areas of Search (January 2011).

3 BACKGROUND

3.1 PURPOSE OF THE SA AND THE SA REPORT

The overall purpose of this SA is to evaluate the likely implications of the Worcestershire WCS and reasonable alternatives for the sustainable development of waste management arrangements in the county, and to inform the plan-making process. The aim is to enable the WCS to take account of the ways in which waste management as proposed might affect the economy, environment and communities of Worcestershire.

The SA has tested the WCS against a series of objectives that reflect relevant sustainable development policy objectives. The WCS and alternatives were tested to determine their potential to give rise to significant effects, in order to enable the identification of the most sustainable strategy in the light of knowledge of the potential significant impacts of the WCS on relevant sustainable development policy objectives.

The findings and recommendations reached through the SA are set out in this report, and the method by which the appraisals were undertaken is described and explained.

3.2 PLAN OBJECTIVES AND OUTLINE OF CONTENTS

The overall purpose of the WCS is to provide a strategic policy framework by which the authorities in Worcestershire will carry out their statutory duty to manage and dispose of waste.

Reflecting the planning framework introduced by the Planning and Compulsory Purchase Act 2004, the WCS not only covers the normal issues relating to land use planning and development management, but also deals with other aspects of waste disposal which have spatial implications.

To reduce the county's current reliance on landfill, the development of waste management infrastructure to divert waste from landfill is critical to delivery of the WCS. As such, areas of search for locations to deliver this capacity across the county have been identified, focusing on a hierarchy of towns where waste development would be permitted. Policies have been drafted which set out how such capacity will be delivered.

The WCS sets out a number of strategic objectives:

Objectives specified in Worcestershire County Council's WCS:	
WO1	To base decisions on the need to reduce greenhouse gas emissions and to be resilient to climate change
WO2	To base decisions on the principles of sustainable development by protecting and enhancing the County's natural resources, environmental, cultural and economic assets, the character and amenity of the local area and the health and wellbeing of the local people
WO3	To make driving waste up the waste hierarchy the basis for waste management in Worcestershire
WO4	To ensure that the waste implications of all new development in Worcestershire are taken into account
WO5	To enable equivalent self-sufficiency in waste management in the County by addressing the "Capacity Gap" over the life of the strategy to 2027 and safeguarding existing waste management facilities from incompatible development
WO6	To involve all those affected as openly and effectively as possible
WO7	To develop a waste management industry that contributes positively to the local economy
WO8	To direct development to the most appropriate locations in accordance with the Spatial Strategy

The following issues are covered by draft policies in the WCS in order to achieve the objectives set out above:

Summary of policies:
Presumption in favour of sustainable development
Capacity requirements for different methods of waste management and delivery milestones
Direction of facilities to the appropriate level of the geographic hierarchy and requirements for recovery facilities
Restriction of development of new landfill sites together with specific landfill gas management and restoration requirements
Direction of facilities to the appropriate land type
Conditions limiting the duration and impact of new developments connected to existing mineral or landfill sites or other temporary facilities
Ensuring no adverse effects on transport and other infrastructure
Ensuring proposals for development protect and enhance biodiversity, geodiversity and historic assets
Taking account of flood risk and impacts on water quality and flow
Promoting sustainable construction, resource-efficient development, land stability and landscaping
Taking account of landscapes, green belt and the character of the built environment
Ensuring no adverse effects on amenity and health
Ensuring proposals contribute to social and economic sustainability
Safeguarding waste sites from other developments to ensure waste facilities are not compromised by neighbouring developments
Promoting recycling and recovery of waste from new developments

3.3 *RELATIONSHIP OF WASTE CORE STRATEGY WITH OTHER POLICY DOCUMENTS*

The WCS sits within a framework of other policy documents which together influence both the content of the plan and its implementation. The most important of these are described below:

- European Union legislation, most importantly the *Landfill Directive* which sets targets for reduction in the amount of biodegradable municipal waste sent to landfill, and the *Waste Framework Directive* which implements the waste hierarchy and sets requirements for recycling and recovery. WCC must meet the requirements imposed by the Directives.

- National legislation which is also binding on WCC, principally the *Waste and Emissions Trading Act 2003* which implements the *Landfill Directive* in the UK and introduces a scheme of trading in landfill allowances in order to reduce disposal of biodegradable municipal waste to landfill.

- National waste policy, in particular that set out in *Waste Strategy 2007* (1), sets the framework of overarching policy objectives for waste Local Development Documents (LDDs). The WCS must be aligned with these broad policy objectives such as promoting waste minimisation and implementing the waste hierarchy.

- National planning guidance which sets out details of the policy approaches which should be adopted by local and regional authorities, and which WCC should follow unless there are special circumstances and strong reasons to the contrary. The most significant of these are the National Planning Policy Framework and Planning Policy Statement 10 on *Planning for Sustainable Waste Management*.

- Herefordshire and Worcestershire local authorities have produced a reviewed *Joint Municipal Waste Management Strategy* (2). This constitutes a 30-year plan for the management of municipal waste which seeks to deliver targets for minimising, recycling and treating municipal waste while meeting environmental objectives. The WCS seeks to enable implementation of the Joint Municipal Waste Management Strategy by providing the planning framework by which the facilities to do so will be delivered.

- Worcestershire statutory plans, for example Local Development Frameworks, set the local policy context for the content and implementation of the WCS, particularly policies on the location and control of development, and by which development under the WCS will be bound.

(1) Waste Strategy for England 2007, Department for Environment, Food and Rural Affairs, May 2007
(2) The Joint Municipal Waste Management Strategy for Herefordshire and Worcestershire 2004-2034 First Review November 2009 Headline Strategy, Joint Waste Resource Management Forum

- The Worcestershire Sustainable Community Strategy, and other non-statutory strategies and plans such as the Economic Development Strategy, guide the policy approach of the WCS on specific issues but are not binding.

A list of relevant policies, plans and programmes and a review and summary of their content is set out in *Annex A*. The key points emerging from the review that the SA needs to address are outlined below.

Social

- Access to services, particularly for people living in rural areas.
- Promotion and improvement of access to education.
- Enabling communities to participate in and contribute to the issues that affect them.
- Pockets of deprivation exist in the County.
- Provision of decent affordable housing for all.
- Promotion of communities that are healthy and support vulnerable people.
- Addressing health inequalities.
- Tackling crime, fear of crime and anti-social behaviour.

Environmental

- Encouraging and enabling waste minimisation, reuse, recycling and recovery, in order to meet national, regional and local targets.
- Prevention or reduction of the negative effects of waste management on the environment.
- Target of 60% reduction in carbon dioxide emissions by 2050.
- Improving energy efficiency; increasing the use of renewable energy: 10% of the UK electricity should be coming from renewable energy sources by 2010 and 20% by 2020 (Energy White Paper).
- Development should be focused in, or next to, existing towns and villages with previously-developed land used in preference to greenfield.
- Encouraging and promoting land use activities which will lead to an improvement in the quality of natural resources.
- Development should be informed by, and sympathetic to, the landscape character of the locality.
- Protection of the County's natural and cultural heritage.
- The County is subject to potential flooding from, in particular, the Rivers Severn, Teme, Avon and Stour.
- There is an emphasis on reducing the need to travel and addressing hotspots of road congestion.

Economic

- Ensuring prudent and efficient use of natural resources.
- Ensuring the efficient transportation of freight within the County, so as to support a strong long economy, but ensuring the environmental impacts are minimised.
- On a workplace basis, average earnings well below national comparators combined with a relatively low level of skilled workforce in the County.
- Significant proportion of workforce employed in declining industries.

3.4 COMPLIANCE WITH THE SEA DIRECTIVE/REGULATIONS

The Worcestershire WCS is subject to the requirements of the European Union's Directive on the Environmental Assessment of Certain Plans & Programmes (Directive 2001/42/EC) and the domestic legislation through which the Directive has been transposed into law in England and Wales (the Environmental Assessment of Plans & Programmes Regulations 2004 – Statutory Instrument 2004 No. 1633).

The SA of the WCS was designed and undertaken so as to meet the legal requirements for the environmental assessment of plans. Throughout the report the term 'sustainability appraisal' should be interpreted as encompassing the sustainability appraisal process as required under the Planning & Compulsory Purchase Act 2004 and the strategic environmental assessment process as required under the European Directive and domestic Regulations on the environmental assessment of plans and programmes.

The following table indicates the components of the Sustainability Appraisal Report that make up the Environmental Report, as required by domestic and European law on the environmental assessment of plans.

Table 3.1 Summary Requirements of SEA Directive and Compliance of SA Report

Requirements for Environmental Report	**Component of SA Report**
a) An outline of the contents, main objectives of the plan or programme, and relationship with other relevant plans and programmes;	*Sections 3.2* and *3.3*
b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	*Section 4.2* and *Annex B*
c) The environmental characteristics of areas likely to be significantly affected;	*Section 4.2.1, Annex B* and *Annex F*
d) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;	*Section 4.2.2*
e) The environmental protection objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental, considerations have been taken into account during its preparation;	*Section 3.3, Table 2.1* and *Annex A*
f) The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	*Sections 5.2* to *5.4*, *6.3, 7.6. 8.2* and *8.3, Annexes C, D* and *F*.
g) The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	*Sections 6.3* and *8.4*

Requirements for Environmental Report	Component of SA Report
h) An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	*Sections 7.2-7.6* *Section 2.2.6* *Section 8.5*
i) a description of measures envisaged concerning monitoring in accordance with Art. 10;	*Section 9.2*
j) a non-technical summary of the information provided under the above headings	*Section 1.1*

4 SUSTAINABILITY BASELINE

4.1 INTRODUCTION

This section describes the significant features and conditions within Worcestershire relevant to sustainable development policy and objectives. It provides an overview of the state of the environment, society and the economy in the county in the period preceding the development and publication of the Adoption WCS. The full baseline information which was used to compile this summary is given in *Annex B*.

The aim of this section of the report is to highlight any significant issues or problems that are affecting Worcestershire's economy, its people, or its environment and to outline the way in which the state of the environment, society and the economy might change in the future. The purpose is to set the context within which waste management activities arising out of the WCS will take place, so that the significant sustainability issues and the way that waste management activities might interact with those issues can be better understood. It also enables the SA and the process of developing the WCS to identify and focus on those issues which are significant.

This section of the report incorporates the environmental baseline information requirements that are specified in Schedule 2(6) of the Environmental Assessment of Plans & Programmes Regulations 2004.

4.1.1 *Difficulties in Collecting Data*

There are substantial amounts of data available to populate a sustainability baseline for Worcestershire. However, in some instances specific data relating to Worcestershire was not available. In such cases, where possible, data for the West Midlands region or the country as a whole have been used to indicate the likely situation in Worcestershire. In some cases, no data could be found to describe the baseline situation. In particular, there is little data on likely future trends for many issues.

4.2 SUMMARY OF SIGNIFICANT ISSUES AND PROBLEMS IDENTIFIED

The significant issues which have been identified from a review of the baseline are summarised in the following table.

Table 4.1 Key Sustainability Issues in Worcestershire

Issue	Key findings
Waste	It is estimated that in 2010, 1,591,000 tonnes of waste were produced in Worcestershire. Of this, 405,000 tonnes (25%) was municipal waste, 598,500 tonnes (38%) was commercial and industrial waste, and 510,500 tonnes (32%) was construction and demolition waste. 45% of municipal waste was recycled in 2009/10, compared to 40% for England as a whole. 45% of municipal waste in Worcestershire was landfilled, compared to 47% in England as a whole. In 2008, arisings of hazardous waste were approximately 46,500 tonnes per annum. Worcestershire produced 321,000 tonnes of industrial waste in 2002/03 of which 38% was recycled or re-used, and 307,000 tonnes of commercial waste of which 31% was recycled or re-used.
Climate change	In 2008, Worcestershire's CO_2 emissions were 4799kt. Sources of these emissions were: industry and commerce, 32%; domestic sector, 30%; transport sector, 37%. Between 2005 and 2008, CO_2 emissions from each of these sectors declined, although their relative proportions stayed similar.
Flooding	Approximately 10% of the county is at risk of flooding, principally from the rivers Severn, Teme, Avon and Stour.
Transport	There is relatively little traffic congestion on the county's road network, but the limited number of river crossings is a key cause of congestion in Worcester. There are currently no major rail freight facilities located within Worcestershire.
Growth with prosperity for all	The employment rate for working age people in Worcestershire is 78%, which is ahead of the West Midlands (71%) and England (74%), although at lower tier level the rates vary considerably.
Participation by all	In 2008/09 all of the districts collected recyclable materials from the kerbside of more than 93% of their households, with Redditch and Worcester providing 96% coverage and Malvern Hills and Wychavon 100%.
Technology, innovations and inward investment	The business base of Worcestershire is concentrated towards public administration, education and health with the sector accounting for 26.3% of the county's employment, which is closely followed by distribution, hotels and restaurants at 25.2% of the county's employment. Employment in banking, finance and insurance is also high in Worcestershire at 17.1%, with 16.7% employed in manufacturing.
Energy generation and use	In 2008, Worcestershire consumed 15,541GWh of energy from all sources. This is slightly less than in 2007 (16254.2GWh) and 2006 (16,516GWh). Current renewable energy in the county comes from landfill gas, wood fuel, biofuel, ground source heat, and solar systems. Potential additional sources include solar, biogas, energy crops, wind power and hydro-electricity.
Natural resources (air, water and soil)	To date 9 Air Quality Management Areas (AQMAs) have been declared in Worcestershire, due to poor air quality, with several of these having recently been declared. The AQMAs are associated with busy arterial and main roads. 10 of the county's watercourses are rated as 'Good'; 56 as 'Moderate'; 11 as 'Poor'; and 5 as 'Bad'. The quality of Worcestershire's water courses do not compare very favourably with watercourses in the wider area. The majority of soils are Grade 3 in the agricultural land classification but significant areas of Grade 1 and 2 also occur.
Access to services	Approximately 42% of areas within Worcestershire are ranked within the top 20% most deprived areas nationally in terms of their distance from a range of key local services. 47 areas (approx. 13%) are within the top 5%, and 7 areas (approx. 2%) are within the top 1%.

Issue	Key findings
Landscape	The Worcestershire Landscape Character Assessment identifies and describes 23 different landscape types in the county. There are also numerous historic townscapes – including 147 conservation areas. The County contains parts of two areas designated as Areas of Outstanding Natural Beauty.
Biodiversity, flora and fauna	Worcestershire contains two Special Areas of Conservation, 11 National Nature Reserves, 25 Local Nature Reserves and 5,848ha of ancient semi-natural woodland. There are 111 Sites of Special Scientific Interest (SSSIs) in Worcestershire, of which 93.3 % were classed as 'favourable' or 'recovering' in April 2010. There are approximately 460 Special Wildlife Sites in Worcestershire, of which 29.3% are under appropriate management, and approximately 90 Regionally Important Geological/ Geomorphological Sites, of which 40.2% are under appropriate management.
Health	Male life expectancy in Worcestershire at birth is approximately 1 year below the West Midlands and UK averages, but female life expectancy is approximately 1 year above the regional and UK averages.
Provision of housing	13,742 households in Worcestershire do not have central heating, while 632 households in Worcestershire do not have their own bath/shower and toilet.
Population 1 (learning and skills)	Across Worcestershire, 28% of the population aged 19-retirement age was qualified to Level 4 or higher in 2008. This is below the average for England (31%), but higher than for the West Midlands (26%). Percentages are highest in Worcester (37%) and Malvern Hills (35%) and lowest in Wyre Forest (22%) and Redditch (23%).
Cultural heritage, built design and archaeology	There are nearly 6,000 listed buildings in the county, together with 485 scheduled ancient monuments, 147 conservation areas, and over 22,000 entries on the County Historic Environment Record. There are at least 47 heritage assets classified as being 'at risk' in Worcestershire, comprising 4 Conservation Areas; 28 Scheduled Monuments; 2 Registered Parks & Gardens; and 13 Buildings listed at Grades I and II*.
Population 2 (anti social behaviour, crime, litter and graffiti)	Between April 2009 and March 2010, 33,790 crimes were recorded in Worcestershire. Urban areas saw the highest crime rates, with Worcester City having the highest (8 offences per 1,000 people).
Material assets (including land use & local amenity)	Construction aggregates make up most of the mineral output of the county. Worcestershire provides about 1 million tonnes or 7% of the annual apportionment of aggregates for the West Midlands region. Sand, gravel clay, moulding sand and limestone are the materials being commercially exploited in the foreseeable future. The enjoyment of the countryside is a key pull factor for many visitors to the county. About a quarter of the county's land is designated as green belt.

4.2.1 Areas Likely to be Significantly Affected

The appraisal has considered the areas likely to be significantly affected by implementation of the WCS in order to identify the sustainability characteristics of those areas. In reality, the effects of implementation of the plan can be considered on two levels.

First, the overall effects will be spread throughout the county because waste arises almost everywhere. Hence, waste transport will occur throughout the county and some of the impacts of recycling, recovery and disposal activities

will be widespread and borne by all. In this case, the relevant sustainability characteristics are those as set out in the baseline above and in *Annex B*.

On another level, some of the effects of the management of waste will occur in the vicinity of waste management sites. Areas of search within which development will be regarded as acceptable in principle have been identified, and the 57 areas of search are listed in the WCS. An assessment has been made of the environmental and sustainability conditions in each of the areas of search. The key characteristics of those areas are summarised in *Annex F*. More detailed information on these characteristics is provided in a background document to the WCS, *Identifying Areas of Search*(1).

4.2.2 Worcestershire Characteristics that are Relevant to the WCS

Worcestershire has a number of characteristics that are relevant to the WCS. These are summarised below and described in detail in the baseline assessment presented in *Annex B*.

Worcestershire recycles a higher than average amount of municipal waste, with 45% of household waste recycled or composted in 2009/10 compared to 40% in England as a whole. It landfills slightly less municipal waste (45% compared to 47%). Commercial/industrial and construction/demolition wastes are each larger waste streams than the municipal solid waste stream, although data on how these waste streams are managed is poor.

Although there is relatively little traffic congestion on the county's road network, there are hotspots in and around the main towns and particularly around Worcester.

Air quality is generally good throughout the county, although there are some areas of poor air quality, largely due to transport emissions, and the number of AQMAs in Worcestershire has increased recently.

Construction aggregates make up most of the mineral output of the county. Worcestershire provides about 1 million tonnes or 7% of the annual apportionment of aggregates for the West Midlands region.

About 10% of the land area of the county is subject to flood risk, particularly from the rivers Severn, Teme, Avon and Stour.

The County contains parts of two areas designated as Areas of Outstanding Natural Beauty. There are also numerous historic townscapes including 147 conservation areas, and about a quarter of the county is designated as green belt. There are at least 47 heritage assets classified as being 'at risk' in Worcestershire.

(1) *Worcestershire Waste Core Strategy Background Document: Identifying Areas of Search*, Worcestershire County Council, September 2010

Worcestershire contains or is near to some areas which are designated as internationally important for biodiversity, including Special Protection Areas (SPA) and Special Areas of Conservation (SAC) designated pursuant to Directives 79/409/EEC (1) and 92/43/EEC (2). The sites are all subject to pressures, as indicated in the following table.

Table 4.2 Pressures on European Sites in or near to Worcestershire

European site	Key sensitivities
Lyppard Grange Ponds SAC	Pollution from run-off or change in groundwater levels resulting in change to quantity or quality of water. Atmospheric deposition of pollutants Development - disturbance to suitable terrestrial habitat for great crested newts within proximity of breeding ponds. Increased recreational pressure or interference from public.
Fens Pools SAC	Pollution from run-off or change in groundwater levels resulting in change to quantity or quality of water. Atmospheric deposition has potential to affect supporting terrestrial habitat.
Dixton Wood SAC	Pollution from run-off or change in groundwater levels or water movements. Old ash trees like damp soil conditions. Site would be affected if Areas of Search resulted in contamination of the soil water. Atmospheric deposition of nitrogen on ash woodland.
Bredon Hill SAC	Pollution from run-off or change in groundwater levels. Old ash trees thrive in damp soil conditions. Site would be affected if Areas of Search resulted in contamination of the soil water. Atmospheric deposition, particularly of nitrogen on woodland.
Rivers: • River Wye / Afon Gwy SAC • Severn Estuary SAC	Water quality – pollution through agricultural run-off and sewage outputs is a problem Flow (flow regime should be characteristic of the river). Abstraction should be regulated. Suspended sediments/siltation – through intensification of agricultural practices and other disturbance eg soil degradation around stock feeding points Inappropriate dredging Recreational pressure and disturbance – can lead to disturbance, damage and increases in suspended sediment eg footpath erosion, water-based activities Atmospheric pollution - deposition of oxides of nitrogen & sulphur, acidification of river water (deposition of nitrogen & ammonia) Climate change - change in rainfall patterns and transpiration rates, inc temp – more algal blooms, reduced summer flow. Inc high rainfall – more erosive runoff and sedimentation Illegal fish poaching Spread of introduced non-native species Artificial barriers to fish migration

(1) Directive 79/409/EEC on the conservation of wild birds

(2) Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

European site	Key sensitivities
Wet grassland: • Walmore Common SPA/Ramsar	Maintenance of appropriate grazing regime Water level – maintenance of hydrological regime (grassland communities are strongly influenced by the quantity and base status of the groundwater) Water quality – nutrient enrichment from fertiliser run-off etc Scrub encroachment (often due to undergrazing) Development pressure Spread of introduced non-native species Human disturbance (off-road vehicles, burning (vandalism)) Atmospheric pollution eg nitrous oxides from vehicle exhausts.
Estuarine habitat: • Severn Estuary SAC/SPA/Ramsar	Water quality – pollution Recreational/tourism disturbance Development eg dock/harbour creation, coastal defence works Erosion Siltation Dredging Over-fishing Maintenance of appropriate grazing regime Spread of non-native species Disturbance to bird feeding and roosting habitat (noise / visual)

Sources: Habitats Regulations Screening Assessment of the Worcestershire Waste Core Strategy Final Draft, ERM, June 2009; Waste Core Strategy Habitats Regulations Assessment: Final Report, ERM, March 2011.

A Habitats Regulations Assessment (HRA) has been undertaken by ERM on behalf of Worcestershire County Council. The HRA Screening Assessment(1) concluded that there may be adverse effects on European nature conservation sites arising from implementation of the WCS but that this depends to a large degree on what facilities are developed and where, and that there is a need for further assessment as more details become available. A full HRA was subsequently undertaken and the findings concluded[2] that likely significant effects from the development of thermal treatment facilities at certain scales and within some areas of search on one designated site are uncertain. Further HRA work was then undertaken in summer 2011 and an Addendum to the HRA Report produced. This Addendum revised the earlier findings to state that it is not possible to conclude that there will be no likely significant effects arising from development of thermal treatment facilities within nine of the areas of search identified by the WCS, and therefore that further assessment will be required when more details of specific developments are known. As a response to these findings, policy in the WCS has been amended to allow for this uncertainty and to avoid likely significant effects on designated sites.

(1) *Habitats Regulations Screening Assessment of the Worcestershire Waste Core Strategy: Final Draft*, ERM, June 2009

[2] *Waste Core Strategy Habitats Regulations Assessment: Final Report*, ERM, March 2011

5 APPRAISAL OF THE WCS VISION AND STRATEGIC OBJECTIVES

5.1 INTRODUCTION

The WCS sets out a vision and strategic objectives. The objectives establish a set of policy objectives for the WCS which set the framework for the more detailed policies which follow, while the vision describes a desired state arising from the implementation of the WCS. The vision has been appraised using the appraisal framework. As recommended by government guidance, the strategic objectives have been tested both against the SA objectives and each other, to ensure compatibility with sustainable development objectives and internal consistency.

5.2 VISION OF THE WASTE CORE STRATEGY

The vision has been appraised against the SA framework using the methodology set out in *Section 2.2.10*. The detailed results of this are set out in *Annex C* and summarised below.

The vision explicitly promotes the waste hierarchy, which will support the reduction of greenhouse gas emissions and promote greater resource efficiency. Recovery of energy is not explicitly promoted, but implied through the waste hierarchy. The vision also promotes climate change mitigation and adaptation and therefore is likely to reduce emissions of greenhouse gases and promote flood risk management. Energy use and greenhouse gas emissions will also be reduced through the desire to locate facilities so that they serve communities, minimising road transport and indirectly supporting rail and water freight. Large recovery facilities may not minimise waste transport, although this also depends on their locations, which are not fully known. A planning application has been submitted to WCC for an Energy from Waste facility on the Hartlebury Trading Estate to deal with MSW, but this does not meet the identified capacity gap and therefore more capacity is likely to be required, in particular to deal with C&I waste, and therefore the transport implications of the WCS as a whole are unknown.

The vision aims to promote community-wide responsibility for waste in Worcestershire. By providing facilities in Worcestershire for Herefordshire's municipal waste, it does not necessarily support community responsibility in Herefordshire. However, community responsibility in Worcestershire is promoted and significantly more waste is generated in Worcestershire than in Herefordshire. The vision also supports the economic contribution of waste management and is likely indirectly to support the development of new technologies.

In seeking to avoid damage to environmental and cultural assets, the vision will help to ensure protection of air, water, soil, landscape, biodiversity and

the built and historic environment, although it does not specifically address the potential for effects on health and amenity. The effects on the use of greenfield, agricultural and green belt land are unclear but the risk should be low.

In order to mitigate potential adverse effects identified above and to capitalise on opportunities, the vision should explicitly promote energy recovery, and explicitly seek to protect human health and amenity and to direct development towards previously developed land.

5.3 *OBJECTIVES OF THE WASTE CORE STRATEGY*

Government guidance recommends that the SA should undertake a compatibility analysis between the objectives of the WCS and the SA appraisal objectives. This has been done and the results are set out in *Table 5.1* below.

The purpose of this exercise is to determine whether the objectives of the WCS will contribute to sustainable development, and to identify any potential incompatibilities between the objectives of the WCS and sustainable development policy objectives. To do this, the WCS objectives have been compared with each of the SA appraisal objectives and an assessment made of the likelihood that the WCS will contribute to the achievement of each objective for sustainable development.

Box 5.1 Strategic Objectives of the WCS

WO1	To base decisions on the need to reduce greenhouse gas emissions and to be resilient to climate change
WO2	To base decisions on the principles of sustainable development by protecting and enhancing the county's natural resources, environmental, cultural and economic assets, the character and amenity of the local area and the health and wellbeing of the local people
WO3	To make driving waste up the waste hierarchy the basis for waste management in Worcestershire
WO4	To ensure that the waste implications of all new development in Worcestershire are taken into account
WO5	To enable equivalent self-sufficiency in waste management in the County by addressing the "Capacity Gap" over the life of the strategy to 2027 and safeguarding existing waste management facilities from incompatible development
WO6	To involve all those affected as openly and effectively as possible
WO7	To develop a waste management industry that contributes positively to the local economy
WO8	To direct development to the most appropriate locations in accordance with the Spatial Strategy

Table 5.1 below shows the results of the test against SA objectives. There are no clear incompatibilities between the aims of the WCS and the appraisal objectives although there are a number of areas of uncertainty. The main reason for this is that the Spatial Strategy will direct development near to urban areas and so it has the potential to affect residential amenity, and may

also direct development near to the AONBs. However, the likelihood of effects is unknown at this stage. Applications for waste development will be required to demonstrate no adverse impacts on amenity or on the AONBs. In addition, moving waste up the waste hierarchy may increase the need for waste transport due to the need for multiple handling of waste streams, however the vision seeks to minimise road transport.

It is noted that there are no strategic objectives that could clearly cover the sustainable development objectives of raising skills levels and reducing crime and anti-social behaviour. However, these are not directly relevant to the scope of the WCS and therefore no recommendations are made for addressing these objectives.

Table 5.1 Assessment of Strategic Objectives against SA Objectives

Key:
✓ Positive compatible
× Possible conflict
0 Neutral
? Uncertain

WCS Objectives[1] / SA Objectives	1	2	3	4	5	6	7	8	Comments
1. Waste Manage waste in accordance with the waste hierarchy	✓	0	✓	✓	✓	0	0	0	Objective WO3 sets targets for the amount of recycling and recovery for each of the waste streams of MSW, C&I, C&D and hazardous waste. It also supports the concept of zero waste in the longer term.
2. Climate Change Reduce causes of and adapt to the impacts of climate change.	✓	0	✓	✓	✓	0	0	✓	The Spatial Strategy should enable facilities to be located close to the source of arisings, thereby reducing transport emissions of greenhouse gases. However, the significance of effects will depend on the number, size, type and precise location of facilities and therefore the effect is unclear at this stage.
3. Flooding Ensure inappropriate development does not occur in high-risk flood-prone areas and does not adversely contribute to fluvial flood risks or contribute to surface water flooding in all other areas.	0	✓	0	0	0	0	0	?	Protecting economic and environmental assets could indirectly ensure flood risk is appropriately managed. The effect of the Spatial Strategy depends on the precise location of development and design standards.
4. Traffic and transport Reduce the need to travel and move towards more sustainable travel patterns.	✓	0	?	0	0	0	0	✓	Promoting the waste hierarchy will increase the need for multiple handling of waste streams, which is likely to increase the need for waste transport, although the significance of effects depends on where facilities are located. The Spatial Strategy should enable facilities to be located close to the source of arisings, thereby reducing transport emissions of greenhouse gases. However, the significance of effects will depend on the number, size, type and precise location of facilities.
5. Growth with prosperity for all Develop a knowledge-driven economy, the infrastructure and skills base whilst ensuring all share the benefits, urban and rural.	0	0	✓	0	✓	0	✓	0	By encouraging the management of waste at higher levels of the waste hierarchy and requiring new facilities to address the capacity gap, the WCS is likely to support and encourage the development of waste infrastructure which uses new technologies for managing waste.

WCS Objectives[1] SA Objectives	1	2	3	4	5	6	7	8	Comments
6. Participation by all Provide opportunities for communities to participate in and contribute to the decisions that affect their neighbourhood and quality of life, encouraging pride and social responsibility in the local community.	0	0	0	0	0	✓	0	✓	The Spatial Strategy should enable facilities to be located close to the source of arisings, thereby enabling communities in Worcestershire to take responsibility for the waste they produce, although not necessarily in Herefordshire.
7. Technology, innovation and inward investment Promote and support the development of new technologies, of high value and low impact, especially resource efficient technologies and environmental technology initiatives.	✓	0	✓	0	✓	0	✓	0	
8. Energy generation and use Promote energy efficiency and energy generated from renewable energy and low carbon sources.	✓	0	✓	0	0	0	0	0	
9. Natural resources Protect and enhance the quality of water, soil and air.	0	✓	✓	0	0	0	0	0	Promoting the waste hierarchy will reduce landfill which will help to reduce the risk of pollution effects.
10. Access to services Improve the quality of, and equitable access to, local services and facilities, regardless of age, gender, ethnicity, disability, socio-economic status or educational attainment.	0	0	✓	0	0	0	0	0	Promoting the waste hierarchy will require improved access to waste management services to achieve increased recycling and composting levels.
11. Landscape Safeguard and strengthen landscape character and quality.	0	✓	0	0	0	0	0	?	The Spatial Strategy may direct development near to AONBs although the likelihood of effects is unknown.
12. Biodiversity, geodiversity, flora and fauna Conserve and enhance Worcestershire's biodiversity and geodiversity and ensure networks of habitats are conserved and enhanced.	✓	✓	0	0	0	0	0	0	
13. Health Improve the health and well being of the population and reduce inequalities in health.	0	✓	0	0	0	0	0	0	Protecting environmental cultural and social assets is likely to have a beneficial effect on health.

WCS Objectives[1] SA Objectives	1	2	3	4	5	6	7	8	Comments
14. Provision of housing Provide decent affordable housing for all, of the right quality and tenure and for local needs, in clean, safe and pleasant local environments.	0	0	0	✓	0	0	0	?	The Spatial Strategy directs development near to urban areas which has the potential to affect residential amenity, although the likelihood of effects is unknown.
15. Population (learning and skills) Raise the skills level and qualifications of the workforce.	0	0	0	0	0	0	?	0	Promoting the waste management industry may help to raise skills levels, although the contribution to the workforce overall is likely to be small.
16. Cultural heritage, built design and archaeology Conserve and enhance the historic and built environment and seek well-designed, resource efficient, high quality built environment in new development proposals which respects local character and distinctiveness.	0	✓	0	✓	0	0	0	0	
17. Population (antisocial behaviour, crime, litter and graffiti) Reduce crime, fear of crime and antisocial behaviour.	0	0	0	0	0	0	0	0	
18. Material assets Ensure efficient use of land through safeguarding of mineral reserves, the best and most versatile agricultural lands, land of green belt value, maximising use of previously developed land and reuse of vacant buildings, where this is not detrimental to open space and biodiversity interest.	0	✓	✓	0	✓	0	0	0	Protection of environmental assets should ensure protection of open space and greenfield and green belt land.

Note (1) Refer to *Box 5.1* for description of WCS Objectives

Table 5.2 shows the results of the test of internal compatibility of the WCS objectives. In no case are any of the WCS objectives clearly incompatible with any of the other objectives. However, there is one instance where there is a link between the objectives but it is not clear that the objectives are compatible. The key issue is in relation to strategic objective WO8 and the likelihood of effects of the Spatial Strategy on landscape and amenity. These uncertainties are examined further in the assessment of policies, in particular policy WCS2.

Table 5.2 Assessment of Internal Compatibility of Strategic Objectives

WCS Objective	2	3	4	5	6	7	8	Comments
1	✓	✓	✓	✓	0	0	✓	
2		0	0	✓	0	✓	?	The effect of the Spatial Strategy on landscape and amenity is unclear.
3			✓	✓	0	✓	0	
4				0	0	0	0	
5					0	✓	0	
6						0	0	
7							0	

5.4 CONCLUSIONS

There are a number of uncertainties about the sustainability effects of the vision and objectives, relating to land use issues and to the effects of the Spatial Strategy on amenity and landscape, and to the effects of the WCS more generally on waste transport and health.

These uncertainties could be clarified through the inclusion of an additional strategic objective on land use, giving priority to locations which are near to the main urban areas, are on previously developed land and are not affected by other land use constraints.

Either the vision or the objectives should also aim to minimise waste transport and should explicitly promote energy recovery.

6 APPRAISAL OF POLICIES

6.1 INTRODUCTION

The WCS sets out some policies by which it is intended the WCS will achieve its vision and strategic objectives. The policies have been appraised and the results are set out in this section.

6.2 PROPOSED POLICIES

The WCS sets out proposed policies, and describes the issues which each policy covers and how it is intended to address those issues. The policies are summarised for reference in *Box 6.1*.

Box 6.1 Summary of WCS Policies

WCS1: Presumption in Favour of Sustainable Development

How the presumption will be applied locally

WCS2: Enabling Waste Management Capacity

Capacity requirements for different methods of waste management and delivery milestones

WCS3: Reuse and Recycling

Direction of facilities to the appropriate level of the geographic hierarchy.

WCS4: Other Recovery

Direction of facilities to the appropriate level of the geographic hierarchy and requirements for other recovery facilities

WCS5: Landfill and Disposal

Restriction of development of new landfill sites, direction of landfill to suitable locations, direction of disposal other than landfill to the appropriate level of the geographic hierarchy, and landfill gas management and restoration requirements

WCS6: Compatible Land Uses

Direction of facilities to the appropriate land type

WCS7: Development Associated with Existing Temporary Facilities

Conditions limiting the duration and impact of new developments connected to existing mineral or landfill sites or other temporary facilities

WCS8: Site Infrastructure and Access

Ensuring no adverse effects on transport and other infrastructure

WCS9: Environmental Assets

Ensuring proposals for development protect and enhance biodiversity, geodiversity and historic assets

WCS10: Flood Risk and Water Resources

Taking account of flood risk and impacts on water quality and flow

WCS11: Sustainable Design and Operation of Facilities

Promoting sustainable construction, resource-efficient development, land stability and landscaping

WCS12: Local Characteristics

Taking account of landscapes, green belt and the character of the built environment

WCS13: Green Belt

Preventing inappropriate waste development in the Green Belt.

WCS14: Amenity

Ensuring no adverse effects on amenity and health

WCS15: Social and Economic Benefits

Ensuring proposals contribute to social and economic sustainability

WCS16: New Development Proposed On or Near to Existing Waste Facilities

Safeguarding waste sites from other developments and ensuring waste facilities are not compromised by neighbouring developments

WCS17: Making Provision for Waste in All New Development

Promoting recycling and recovery of waste from new developments

6.3 *APPRAISAL RESULTS*

An appraisal of the WCS policies has been carried out, according to the methodology set out in *Section 2.2.10*. The detailed findings from the appraisal of policies are set out, policy by policy, in *Annex C*. The overall conclusions are summarised in *Table 6.1* showing the assessment of the effects of the WCS policies according to the objectives of the appraisal framework. In addition to setting out information about the likely effects of the policies on each of the appraisal objectives, the tables in *Annex C* provide recommendations where appropriate for mitigation of effects.

Recommendations for mitigation are as follows:

- Policies should give a stronger impetus to the waste hierarchy by requiring applicants for recovery facilities to demonstrate that reuse and recycling has been "maximised" rather than "optimised" in WCS4.

- Policies should require planning applications to demonstrate how a facility will be located to minimise the distance that waste is transported, for example in policy WCS8.

- The assessment and mitigation of effects on flood risk, air quality, biodiversity, heritage assets and local residential amenity should be a particular requirement for planning applications at certain specific sites.

- WCS10 should promote flood risk reduction and water quality enhancement where practicable.

Please refer to *Annex C* for further detail on mitigation recommendations.

Table 6.1 Summary of Appraisal of WCS Policies

Key

Impacts		Significance
+	positive impact	Low significance
-	negative impact	Medium significance
0	no significant impact	High significance
?	impact unknown	
Ø	not relevant	

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
1. Manage waste in accordance with the waste hierarchy	+	+	+	+/?	+	0	0	Ø	Ø	Ø	+	Ø	Ø	Ø	+	+	+	Support is given to the waste hierarchy across several of the policies where relevant, requiring delivery of capacity to meet the identified capacity gap at different levels of the hierarchy, and restricting landfill. However, no policy clearly prioritises reuse, recycling and composting over recovery and therefore continued improvement beyond the identified targets may fail to happen or even be prevented.
2. Reduce causes of and adapt to the impacts of climate change.	+	+	+	+	+	Ø	Ø	+	Ø	+	+	Ø	Ø	Ø	+	0	+	Policies will promote the reduction of greenhouse gas emissions through the facilitation of new developments to divert waste from landfill, recovery of resources including energy and recovery of landfill gases. Emissions from waste transport may also be reduced by locating facilities near to the main settlements thereby reducing waste transport, however this depends on the types, capacities and locations of facilities which are

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
																		unknown. Policies also promote adaptation to climate change.
3. Avoid flood risk	+	Ø	?	?	Ø	Ø	Ø	Ø	Ø	+	Ø	Ø	Ø	Ø	Ø	0	Ø	Development management policy should ensure flood risk is not increased. However, zones 1 and 2 of the geographic hierarchy and some of the identified areas of search have increased flood risk associated with them. For planning applications which are located within Flood Zone 2 a more detailed Flood Risk Assessment will be required.
4. Reduce the need to travel and promote sustainable travel	+	?	?	?	-	+	+	+	Ø	Ø	?	Ø	Ø	0	+	?	-/0	By increasing recycling and recovery, the policies may increase the need for waste transport by requiring multiple handling of waste streams. The spatial strategy specifically aims to locate facilities near to the centres of population and therefore is likely to limit waste transport distances, although by dealing with Herefordshire's municipal waste in Worcestershire the policies are likely to promote relatively long waste transport distances for Herefordshire's waste. However, it is not possible to estimate the amount of waste transport required to implement the WCS because it is not known which of the large number of areas of search might be developed for waste management purposes, nor the type or capacity of facility which might be developed, all of which

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
																		have an effect on the amount of waste transport required. The use of rail and water transport are encouraged by the WCS, but not the minimisation of waste transport although co-location is supported. Policies should require planning applications to demonstrate how a facility will be located to minimise waste miles.
5. Develop a knowledge-driven economy	+	+	+	+	+	Ø	Ø	Ø	Ø	Ø	+	Ø	Ø	Ø	+	Ø	Ø	The WCS supports the development of waste management facilities, encouraging the growth and development of the waste sector in Worcestershire and increasing its economic contribution.
6. Encourage participation and responsibility	+	+/-	+/-	+/-	+	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	+	Ø	+	The facilitation of the development of new recycling and recovery facilities near to the urban areas in Worcestershire will indirectly support increased responsibility by its communities for the waste they produce, although not necessarily for Herefordshire's communities. The WCS will also make it easier for occupants of new developments to recycle their waste, and explicitly requires community involvement and participation in waste developments.
7. Promote new technologies	+	+	+	+	+	Ø	Ø	Ø	Ø	Ø	+	Ø	Ø	Ø	+	Ø	+	By facilitating the development of sites to divert waste from landfill and through support for climate change mitigation and adaptation and efficient use of energy, water and resources, the policies will help to

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
																		support the development of new, resource-efficient technologies for managing waste.
8. Promote energy efficiency and renewable/low carbon generation	+	+	+	+	+	+	Ø	+	Ø	Ø	+	Ø	Ø	Ø	Ø	0	Ø	The policies give a strong emphasis on increasing energy efficiency by promoting energy recovery and renewable generation from landfill gas, and requiring waste developments to be energy efficient. Most of the identified areas of search could have some potential for the use of CHP, which is promoted in the supporting text. The impact of the WCS on the use of energy for waste transport is unknown.
9. Protect and enhance water, soil and air.	+/0	Ø	+/0 /?	+/0 /?	0/?	+	?	+	Ø	+	+	Ø	Ø	+	Ø	0	0	Policy requires the avoidance of adverse impacts on air and water quality and water flow, and will help to protect water by directing development away from sensitive areas. The quality of water should also be protected through a requirement for waste developments to be water-efficient. Soil quality is likely to be protected and enhanced through allowing development on greenfield land only where strongly justified, and through the use of landfill to restore derelict land which is likely to enhance soil quality.
10. Improve quality and access to	+	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	+	Requiring developers to provide facilities for recycling and composting in new developments

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
services																		will help to improve access to recycling services.
11. Safeguard and strengthen landscape quality	+	Ø	?	?/+	+	Ø	+	Ø	Ø	Ø	+	+	Ø	+	Ø	Ø	Ø	Policies explicitly require the protection and enhancement of landscapes and local character therefore significant adverse effects are unlikely.
12. Conserve and enhance biodiversity and geodiversity	+	Ø	+/-	+	+	Ø	?	Ø	+	+	+	Ø	Ø	Ø	Ø	Ø	Ø	Policies explicitly require the protection and enhancement of biodiversity and geodiversity, and biodiversity benefits may be secured in the long term through landfill restoration. However, five of the identified areas of search are very close to Special Wildlife Sites and therefore adverse impacts are likely at these sites; assessment and mitigation of effects should be a particular requirement for planning applications at these sites.
13. Improve health and well being	+	0	0	0	0	0	0	0	Ø	Ø	Ø	Ø	Ø	0	Ø	0	Ø	Policy requires that unacceptable effects on health are avoided, and health impacts are unlikely if facilities are operated in accordance with good practice standards.
14. Provide decent affordable housing for all	+	Ø	?	?	?	?	Ø	0	Ø	Ø	Ø	+	Ø	0	Ø	0	+	The zones in the geographic hierarchy are close to major settlements and therefore have the potential to affect residential areas. A number of the identified areas of search are in close proximity to residential areas, and therefore significant effects on the quality of local residential environments are

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
																		possible although this depends on the specific location and nature of developments. However, policy requires developments to have no adverse effects on local amenity, therefore significant effects should be avoided. The significance and mitigation of possible effects on residential amenity should be taken into particular account in planning applications at these sites. The policy will support better designed developments by requiring the provision of waste facilities. Landfill restoration could provide valuable open space for communities, and safeguarding should prevent effects from existing waste sites on new residential developments.
15. Raise skills levels	?	?	?	?	?	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	+	Ø	Ø	By facilitating the development of new waste management facilities and technologies, the policy may help to raise skills levels, although this is unlikely to be significant for the county's workforce as a whole.
16. Conserve and enhance the historic and built environment	+	Ø	+/?	+/?	?	Ø	Ø	Ø	+	Ø	+	+	Ø	+	Ø	0	+	Policy requires developments to avoid some types of historic designations, and promotes good design and resource-efficient developments. It specifically requires conservation and enhancement of the historic environment, heritage assets and local character. The methodology to identify areas of search takes into account

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
																		designations of historical value and therefore significant effects are unlikely in the main. However, four of the areas of search are near to designated assets, including one which is within a conservation area. Therefore adverse effects are possible at these sites and assessment and mitigation of effects should be a particular requirement for planning applications at these sites. Safeguarding should ensure that the risk of adverse effects on the quality of the built environment is not increased by inappropriate development near to waste sites.
17. Reduce crime and antisocial behaviour	?/+	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	+	+	Ø	Ø	The WCS aims to educate communities about sustainable waste management which may help to reduce littering and fly-tipping, although this is unlikely to have a significant impact on crime levels overall in Worcestershire.
18. Ensure efficient use of land	+	Ø	+/-	+/-	+/-	+/-	+	Ø	+	Ø	+	Ø	+	Ø	Ø	0	?	The WCS requires developments to be in existing buildings or on previously developed sites, which will help to maximise reuse and avoid impacts on open spaces. It also protects the green belt from inappropriate development. However, some of the areas of search contain undeveloped land or are within the green belt where development could reduce openness,

WCS policies / SA objectives	WCS1	WCS2	WCS3	WCS4	WCS5	WCS6	WCS7	WCS8	WCS9	WCS10	WCS11	WCS12	WCS 13	WCS14	WCS15	WCS16	WCS17	Comments
																		therefore adverse effects on open land and/or agricultural land and/or green belt are possible or in some cases likely. In addition, some types of land identified as suitable in a general sense for waste development are likely to be greenfield land (eg curtilage of agricultural/forestry buildings). In addition, some of the geographic zones level 1 and 2 are in green belt therefore adverse effects are possible. However, the effect on such land for the county as a whole is unlikely to be significant By promoting recycling and reuse and the minimisation of the use of primary construction materials, the policies will help to increase the supply of secondary aggregates and reduce demand for virgin mineral resources. By restricting the development of landfill capacity, the WCS may support incentives to recycle C&D waste and thereby help to safeguard mineral reserves. Landfill to restore previously developed or derelict land is promoted, and to provide open space for communities.

7 DEVELOPMENT AND APPRAISAL OF ALTERNATIVES

7.1 INTRODUCTION

The SA is required to appraise the impacts of the WCS and of reasonable alternatives to it. In developing the WCS, a number of options have been considered at various stages in the process, specifically at the Issues and Options stage, at the Emerging Preferred Options stage, at the First Draft Submission stage, at the Publication Document stage, and at the Proposed Changes stage as set out in the Addendum to the WCS Publication Document.

In the progression from each stage of the process to the next stage, the options under consideration have been taken forward and developed or refined, also taking into account comments made by stakeholders including members of the public in response to the consultation at each stage.

7.2 OPTIONS AT ISSUES AND OPTIONS STAGE

The Issues and Options document which was published for consultation in September 2008 posed a number of questions on a range of issues, and in some cases identified possible options in response to the issues. The Sustainability Appraisal process undertook an assessment of the Issues and Options document, and set out the findings and conclusions in an Initial Appraisal Report.

For some of the issues and options which were raised, it was not considered useful to appraise them for sustainability implications as there were no clear sustainability issues involved. However, for other issues and options, it was clear that there were sustainability implications around the choice of preferred option, and therefore the Initial Appraisal assessed each of the relevant options to identify the likely sustainability effects arising from them.

The issues and options which were assessed in the Initial Appraisal are as follows.

- Geographic or locational issues to be considered in the spatial portrait for Worcestershire;
- The draft Vision statement;
- Guiding principles for the WCS;
- Draft local objectives for the WCS;
- Monitoring implementation of the WCS;
- Whether and how to allocate C&I and C&D capacity requirements to the individual lower tier authorities;
- Factors to consider in protecting the environment, health, employment and amenity;
- Future plans and strategies of spatial relevance in Worcestershire;

- Options for the approach to green belt;
- Options for focusing development in urban or rural locations;
- Options for the approach to commissioning small or large facilities;
- Options for whether to prioritise centralised or dispersed facilities;
- Options for quantities of waste to be managed at different levels of the waste hierarchy; and
- Whether to specify waste management technologies, or to identify broad locations or sites and broad types of suitable uses.

These options were selected for appraisal because they were identified as reasonable alternatives by the Issues and Options document. The discussion of these alternatives and rationale for selection is set out in detail in the Issues and Options document.

7.3 OPTIONS AT EMERGING PREFERRED OPTIONS STAGE

The Emerging Preferred Options document again discussed a number of issues to be considered in moving towards a set of preferred options, and in many cases identified a preferred option for addressing the issue. It then went on to set out proposed policies for delivering the preferred options, informed by the discussion of issues in the preceding sections of the Emerging Preferred Options report.

In most cases, the proposed policies incorporated the preferred option for each area of policy or type of issue addressed in the earlier sections of the document. However, in some cases, the preferred option was not yet identified. The following table sets out for each issue addressed by the proposed policies in the Emerging Preferred Option document the preferred option and alternatives to it, or the options which were still under consideration.

These options were selected for appraisal because they were identified as reasonable alternatives by the Emerging Preferred Options document, and address the different issues which could be considered when making decisions about how much waste capacity will be required for the main waste streams, what scale of facilities should be required, and where those facilities should be located. The options sought to develop the concept of a geographic hierarchy as set out in the draft Regional Spatial Strategy and apply it to Worcestershire taking account of particular local circumstances, taking different approaches of allocating capacity to the hierarchy. The discussion of these alternatives and rationale for selection is set out in detail in the Emerging Preferred Options document.

Table 7.1 Preferred Options and Reasonable Alternatives

Issue	Preferred Option	Alternatives
Urban or rural locations for facilities	To concentrate waste development in urban locations, with justified minimal development in rural areas	Refreshed Issues and Options consultation document identified the following alternative options: 1. Focus is evenly split between urban and rural locations 2. Focus is on development in rural locations with justified minimal development in urban locations
Centralised or dispersed facilities	To focus on centralised facilities but with dispersed facilities if justified	Refreshed Issues and Options consultation document identified the following options: **1.** Even split between centralised and dispersed facilities **2.** Focusing on dispersed facilities but with a countywide/central service facility, if justified
Large or small facilities	To establish primarily large facilities	Refreshed Issues and Options consultation document identified the following options: **1.** Even split of large and small waste management facilities **2.** Primarily small waste management facilities
Green belt	That waste development would be appropriate in the green belt when in accordance with national policy	Refreshed Issues and Options consultation document identified the following options: 1. Any new waste management facility in the greenbelt is inappropriate, unless exceptional circumstances are justified 2. New waste development in the green belt is appropriate when (i) on previously developed land; and (ii) when in accordance with national policy
Locational strategy for MSW, C&I, C&D	To adopt a hierarchy of towns indicating broad areas for waste development The role of large industrial estates within the broad areas hierarchy will be explored at the next stage of the WCS development.	No alternatives are proposed in the Emerging Preferred Options document. A 'do nothing' option, ie to have no locational strategy, is not considered realistic.
Allocating facilities to locational hierarchy[1]	No preferred option identified	The Emerging Preferred Options document proposes defining what facilities would be acceptable where on the basis of either 1. Size

Issue	Preferred Option	Alternatives
		2. Broad kind 3. Specific type
MSW capacity needs	To meet targets in JMWMS for recycling/composting and diversion of biodegradable waste from landfill, and not specifying the type of residual treatment facility required.	No options identified. WCS should provide capacity to meet JMWMS targets therefore alternatives are not appropriate.
C&I capacity needs	To meet RSS targets for diversion from landfill	Refreshed Issues and Options consultation document identified the following alternative option: 1. Meeting BPEO[2] targets ie % targets for recycling, treatment and landfill
C&D capacity needs	Providing capacity to manage arisings	Refreshed Issues and Options consultation document identified the following alternative option: 1. Meeting BPEO[2] targets ie % targets for recycling and landfill
Hazardous waste capacity	Maintain the status quo, maintaining sufficient transfer capacity and developing policies to enable facilities to treat or dispose of waste if applications are made	The Emerging Preferred Options document identifies the following alternative: 1. Manage all of Worcestershire's hazardous waste in-county However, the Emerging Preferred Options document also states that this is not a realistic option and there is no evidence of need for any greater capacity than existing. It is therefore concluded that this is not a reasonable alternative to the status quo.

Notes

1: The issue of whether and how to allocate C&D capacity to the individual lower tier authorities was not carried forward into the Emerging Preferred Options. No explanation was given for this in the Emerging Preferred Options document.

2: Best Practicable Environmental Option identified and adopted in 2003

7.4 *OPTIONS AT FIRST DRAFT SUBMISSION STAGE*

The First Draft Submission WCS embodied some of the preferred options which were identified at the stage of the Emerging Preferred Options document. Table 7.2 shows how the options were taken forward from the Emerging Preferred Options to the First Draft Submission stage.

In addition, the First Draft Submission WCS identified some additional options which were considered and appraised in the SA of the First Draft Submission WCS:

- Alternative methods of calculating arisings and the predicted capacity gap;
- Alternative methods for identifying areas of search.

These options were selected for appraisal because they were identified as reasonable alternatives by the First Draft Submission Background Document Identifying Areas of Search (September 2010), which contains a detailed discussion of the options and rationale for their selection. However, the first group of alternatives was not appraised because there are no particular sustainability implications of any of the methods. The second group of alternatives is set out in more detail in *Table 7.3*. These alternatives were chosen because they represent a range of possible approaches to deciding where facilities should be located, with varying degrees of control over this exercised by the WCS, taking account of the type of facility, the nature of the locations/sites and the variety between the different settlements in Worcestershire. The options also aimed to address the views expressed in the public consultation on the Emerging Preferred Options indicating a low level of support for the previous approach.

7.5 *OPTIONS AT PUBLICATION DOCUMENT STAGE*

The WCS Publication Document embodied some of the preferred options which were identified at the stage of the Emerging Preferred Options document and at the First Draft Submission stage. Table 7.2 shows how the options have been taken forward from the Emerging Preferred Options to the First Draft Submission stage, to the WCS Publication Document and subsequently to the Addendum, and assesses the implications for the appraisal work of the SA.

The main change to the Preferred Options from the First Draft Submission stage was the introduction of a new approach to the geographic hierarchy. Instead of the previous approach of allocating an aspirational percentage distribution of capacity at the different levels of the hierarchy, the WCS Publication Document directed recycling/composting and recovery capacity to the upper levels of the hierarchy and only allowed capacity to be provided at the lower levels of the hierarchy where it can be justified. This approach is embodied in policies WCS3 and WCS4 which have been appraised as part of the policy appraisal (see *Section 6* and *Annex C*).

In addition, a new set of options was introduced at Publication Document stage, in relation to the approach to hazardous waste. The reasons the particular alternatives were chosen are as follows:

- One option represents the previous approach of the WCS to hazardous waste (ie not to identify any capacity gap);
- A second option represents the approach of the WCS Publication Document to hazardous waste (ie to identify a capacity gap for recycling and recovery and encourage facilities to be developed to fill that gap);
- The third option is to reflect views made in representations on the First Draft Submission WCS (ie to provide for landfill of hazardous waste).

7.6 OPTIONS AT PROPOSED CHANGES STAGE

The WCS as amended by the changes proposed in the Addendum to the WCS Publication Document embodied most of the preferred options which were identified at the stage of the WCS Publication Document. The following tables show how the options have been taken forward from the Emerging Preferred Options to the First Draft Submission stage and subsequently to the WCS Publication Document.

The main change introduced by the Addendum to the WCS Publication Document was the explicit inclusion of a recycling target for C&I waste in the WCS. The WCS previously only gave a recovery target for C&I waste and did not include a specific recycling target.

The reasons the particular alternatives were chosen are as follows:

- One option represents the previous approach of the WCS to C&I targets (ie not to have a specific recycling target but to have a 75% recovery target);
- A second option represents the approach introduced in the Addendum to the WCS in response to a recommendation by the SA (ie to have an explicit 55% recycling target);
- The third option is one considered at early stages in the development of the WCS (ie to have a 73% recycling target for C&I waste).

Table 7.2 Development of Preferred Options, Reasonable Alternatives and Approach of SA

Issue	Preferred Option at EPO Stage	Alternatives	Preferred Option at FDS Stage	Preferred Option at Publication Document Stage	Preferred Option at Addendum Stage	Approach in SA of WCS as amended by Addendum
Urban or rural locations for facilities	To concentrate waste development in urban locations, with justified minimal development in rural areas	Refreshed Issues and Options consultation document identified the following alternative options: 1. Focus is evenly split between urban and rural locations 2. Focus is on development in rural locations with justified minimal development in urban locations	As at EPO stage	As at EPO stage	As at EPO stage	Appraised at EPO stage. No further appraisal
Centralised or dispersed facilities	To focus on centralised facilities but with dispersed facilities if justified	Refreshed Issues and Options consultation document identified the following options: 1. Even split between centralised and dispersed facilities 2. Focusing on dispersed facilities but with a countywide/central service facility, if justified	FDS does not specify a preferred approach to whether facilities should be centralised or dispersed.	As at FDS stage	As at FDS stage	Appraised at EPO stage. No further appraisal
Large or small facilities	To establish primarily large facilities	Refreshed Issues and Options consultation document identified the following options: 1. Even split of large and small waste management facilities 2. Primarily small waste management facilities	FDS states that locations are identified to enable facilities of a range of scales and sizes to be brought forward.	As at FDS stage	As at FDS stage	Appraised at EPO stage. No further appraisal
Green belt	That waste development would be appropriate in the green belt when in accordance with national policy	Refreshed Issues and Options consultation document identified the following options: 1. Any new waste management facility in the greenbelt is inappropriate, unless exceptional circumstances are justified 2. New waste development in the green belt is appropriate when (i) on previously developed land; and (ii) when in accordance with	Where proposals for waste development constitute inappropriate development in locations designated as green belt, very special circumstances must be demonstrated.	As at FDS stage	As at FDS stage	Appraised at EPO stage. This is in accordance with alternative 1, therefore no further appraisal necessary.

Issue	Preferred Option at EPO Stage	Alternatives	Preferred Option at FDS Stage	Preferred Option at Publication Document Stage	Preferred Option at Addendum Stage	Approach in SA of WCS as amended by Addendum
		national policy				
Locational strategy for MSW, C&I, C&D	To adopt a hierarchy of towns indicating broad areas for waste development. The role of large industrial estates within the broad areas hierarchy will be explored at the next stage of the WCS development.	No alternatives are proposed in the Emerging Preferred Options document. A 'do nothing' option, ie to have no locational strategy, is not considered realistic.	As at EPO stage	As at EPO stage	As at EPO stage	Appraised at EPO stage. No further appraisal.
Allocating facilities to locational hierarchy[1]	No preferred option identified	The Emerging Preferred Options document proposes defining what facilities would be acceptable where on the basis of either 1. Size 2. Broad kind 3. Specific type	FDS identifies areas of search, and those that may be suitable to accommodate large-scale facilities, but does not indicate the scale of facilities that are likely to be delivered.	WCS Publication Document identifies areas of search, some of which may be suitable to accommodate large-scale facilities, and directs recycling and recovery facilities to the upper levels of the geographic hierarchy, but does not indicate the scale of facilities that are likely to be delivered.	As at Publication Document stage	Appraised as policies WCS1 and WCS2 of WCS Publication Document. Alternative approaches appraised at FDS stage as per *Table 7.3* and as draft policy WCS1 of FDS WCS.
MSW capacity needs	To meet targets in JMWMS for recycling/composting and diversion of biodegradable waste from landfill, and not specifying the type of residual treatment facility required.	No options identified. WCS should provide capacity to meet JMWMS targets therefore alternatives are not appropriate.	At least 33% recycling/composting, maximum 22% landfill, remainder for energy recovery.	As at EPO stage, ie at least 50% recycling and composting by 2020, maximum 22% landfill, remainder for energy recovery.	As at Publication Document stage	Options were appraised at Issues and Options stage, therefore no further appraisal necessary.

Issue	Preferred Option at EPO Stage	Alternatives	Preferred Option at FDS Stage	Preferred Option at Publication Document Stage	Preferred Option at Addendum Stage	Approach in SA of WCS as amended by Addendum
C&I capacity needs	To meet RSS targets for diversion from landfill	Refreshed Issues and Options consultation document identified the following alternative option: 1. Meeting BPEO[2] targets ie 73% recycling, 23% landfill and 4% thermal treatment	As at EPO stage, i.e. 75% recycling/composting/recovery and 25% landfill	As at FDS stage	Include an explicit target for 55% recycling of C&I waste	Options re-appraised in SA of WCS as amended by Addendum. See *Section 7.7*.
C&D capacity needs	Providing capacity to manage arisings	Refreshed Issues and Options consultation document identified the following alternative option: 1. Meeting BPEO[2] targets ie at least 76% recycling and maximum of 24% landfill	Minimum of 75% recycling and maximum of 25% landfill.	As at FDS stage		Very similar to alternative 1 at EPO stage, with the same sustainability effects, therefore no further appraisal necessary.
Hazardous waste capacity	Maintain the status quo, maintaining sufficient transfer capacity and developing policies to enable facilities to treat or dispose of waste if applications are made	The Emerging Preferred Options document identifies the following alternative: 1. Manage all of Worcestershire's hazardous waste in-county However, the Emerging Preferred Options document also states that this is not a realistic option and there is no evidence of need for any greater capacity than existing. It is therefore concluded that this is not a reasonable alternative to the status quo.	As at EPO stage	Provide for facilities to come forward to meet the capacity gap identified for recycling and recovery of hazardous waste	As at Publication Document stage	Options were appraised at Publication Document stage, therefore no further appraisal necessary.

Notes
1: The issue of whether and how to allocate C&D capacity to the individual lower tier authorities was not carried forward into the Emerging Preferred Options. No explanation was given for this in the Emerging Preferred Options document.
2: Best Practicable Environmental Option, identified and adopted in 2003

Table 7.3 New Options Introduced at First Draft Submission Stage, Alternatives Considered and Approach of SA

Issue	Preferred Option at FDS Stage	Alternatives	Preferred Option at Publication Document Stage	Approach of SA
Approach to directing	1. Identify the locations where development would	2. Allow industry to bring forward sites and assess them against policy criteria	2. Allow industry to bring forward sites	Options appraised at FDS stage. No

Issue	Preferred Option at FDS Stage	Alternatives	Preferred Option at Publication Document Stage	Approach of SA
development	be acceptable and allow industry to bring forward proposals in other suitable locations	3. Identify the locations where development would be acceptable	and assess them against policy criteria.	further appraisal.
Approach to scale of locations	1. Identify areas of land	2. Identify specific sites 3. Identify broad locations on a key diagram	3. Identify broad locations on a key diagram.	Options appraised at FDS stage. No further appraisal.
Approach to allocating land	1. Identify land suitable for each individual category of waste management development	2. Identify land suitable for all categories of waste management development	As at FDS stage	Options appraised at FDS stage.
Approach to proximity and connectivity	1. Apportion capacity according to settlement hierarchy 2. Favour sites in areas with high arisings and resource demand 3. Determine site allocations according to connectivity to transport networks	4. Apportion to districts based on current arisings and resource demand 5. Apportion to districts based on future growth in employment land 6. Apportion according to current arisings by settlement 7. Determine site allocations according to opportunities for rail and water transport	As at FDS stage	Options appraised at FDS stage.
Allocating capacity to settlement hierarchy	5. Halving proportion by settlement at each level of hierarchy	1. Majority of distribution to top level of hierarchy 2. Almost equal distribution by level of hierarchy 3. Almost equal distribution by settlement at each level of hierarchy 4. Halving proportion at each level of hierarchy	As at FDS stage	Options appraised at FDS stage.

7.7 *APPRAISAL OF OPTIONS AND ALTERNATIVES*

For all of the issues set out in *Sections 7.2* to *7.6* above, the preferred option for addressing the issue and reasonable alternatives to it were appraised at earlier stages of the WCS development against the appraisal framework, according to the methodology set out in *Section 2.2.10*. An assessment was made of the likely effects of implementing the preferred option or its alternatives, and conclusions drawn about the performance of the preferred option. Recommendations were made where appropriate for addressing the predicted impacts. The findings and recommendations from these assessments are set out in earlier SA reports as indicated in *Tables 7.2* and *7.3*:

- *Initial Sustainability Appraisal of Issues and Options for Waste Core Strategy for Worcestershire*, ERM, April 2009
- *Sustainability Appraisal of Emerging Preferred Options for the Waste Core Strategy for Worcestershire*, ERM, November 2009
- *Sustainability Appraisal of the First Draft Submission of the Waste Core Strategy for Worcestershire*, ERM, November 2010
- *Sustainability Appraisal of the Worcestershire Waste Core Strategy Submission Document*, ERM, March 2011
- *Sustainability Appraisal of the Worcestershire Waste Core Strategy Submission Document Addendum*, ERM, September 2011

8 OVERALL ASSESSMENT OF WCS

8.1 INTRODUCTION

This section of the report draws together the findings and conclusions of the assessments of each of the different elements of the WCS, specifically the vision and objectives from *Section* 5, the draft policies from *Section* 0 and the preferred options from *Section* 7. The results of each of these appraisals are synthesised to make an assessment of the WCS overall, and recommendations are provided for addressing the predicted effects.

8.2 OVERALL ASSESSMENT OF WCS

Table 8.1 presents an assessment of the overall effects of the WCS, giving an explanatory description of the predicted effects.

Table 8.1 Overall Appraisal of WCS

SA objectives	Assessment	Comments
1. Manage waste in accordance with the waste hierarchy	+	Support is given to the waste hierarchy across the vision, objectives and policies of the WCS, prioritising recovery of resources over landfill. However, stronger encouragement could be given to prioritise recycling and composting over other recovery, otherwise continued improvement beyond the recycling targets may fail to happen.
2. Reduce causes of and adapt to the impacts of climate change.	+/?	The WCS will promote the reduction of greenhouse gas emissions through the facilitation of new developments to divert waste from landfill, recovery of resources including energy and recovery of landfill gases. Emissions from waste transport may also be reduced by locating facilities near to the main settlements thereby reducing waste transport, however this depends on the types, capacities and locations of facilities which are unknown. Climate change adaptation is promoted by the WCS.
3. Avoid flood risk	+/?	Development management policy is likely to ensure flood risk is not increased, although some of the identified areas of search have increased flood risk associated with them and a more detailed Flood Risk Assessment of developments in these areas will be required at planning application stage.
4. Reduce the need to travel and promote sustainable travel	?	By increasing recycling and recovery, the policies may increase the need for waste transport by requiring multiple handling of waste streams. However, the spatial strategy aims to locate facilities near to the larger centres of population which will help to limit waste transport distances, although there will be longer transport distances for municipal waste from Herefordshire than if facilities for this waste were located in Herefordshire. It is not possible to estimate the amount of waste transport required to implement the WCS because it is not known which of the large number of areas of search might be developed for

SA objectives	Assessment	Comments
		waste management purposes, nor the type or capacity of facility which might be developed, all of which have an effect on the amount of waste transport required. Alternative transport modes are encouraged, but the WCS should require planning applications to demonstrate how a facility will be located to minimise waste miles.
5. Develop a knowledge-driven economy	+	The WCS supports the development of waste management facilities, encouraging the growth and development of the waste sector in Worcestershire and increasing its economic contribution.
6. Encourage participation and responsibility	+/-	The facilitation of the development of new recycling and recovery facilities in Worcestershire will indirectly support increased responsibility by its communities for the waste they produce, although not necessarily for Herefordshire's communities. The WCS explicitly requires community participation in waste developments.
7. Promote new technologies	+	By facilitating the development of sites to divert waste from landfill and through support for climate change mitigation and adaptation and efficient use of energy, water and resources, the WCS will help to support the development of new, resource-efficient technologies for managing waste.
8. Promote energy efficiency and renewable/ low carbon generation	+	The WCS gives a strong emphasis on increasing energy efficiency by promoting energy recovery and renewable generation from landfill gas, and requiring waste developments to be energy efficient. The impact of the WCS on the use of energy for waste transport is unknown, although this is likely to be significantly smaller than the energy impact of the facilities themselves.
9. Protect and enhance water, soil and air	+	Policy requires the avoidance of adverse impacts on air, water and soil. Promotion of water efficiency, restricting greenfield development and using landfill to restore derelict land will also support the objective.
10. Improve quality and access to services	+	Requiring developers to provide facilities for recycling and composting in new developments will help to improve access to recycling services.
11. Safeguard and strengthen landscape quality	+	The WCS explicitly requires the protection and enhancement of landscapes and local characteristics therefore significant adverse effects are unlikely.
12. Conserve and enhance biodiversity and geodiversity	+/-	The WCS explicitly requires the protection and enhancement of biodiversity and geodiversity. However, five of the identified areas of search are very close to Special Wildlife Sites and therefore adverse impacts are likely at these sites; assessment and mitigation of effects should be a particular requirement for planning applications at these sites. For nine of the areas of search, the Habitats Regulations Assessment could not conclude no likely significant effects on European nature conservation sites, and therefore further assessment is required for any planning application within those areas.
13. Improve health and well being	0	Health impacts from the WCS are unlikely if facilities are operated in accordance with good practice standards.
14. Provide	+/?	The zones in the geographic hierarchy are close to major

SA objectives	Assessment	Comments
decent affordable housing for all		settlements, and some of the identified areas of search are close to residential areas, and therefore effects on the quality of local residential environments are possible. However, policy requires developments to have no adverse effects on local amenity, therefore significant effects should be avoided. The significance and mitigation of possible effects on residential amenity should be taken into particular account in planning applications in these areas of search.
15. Raise skills levels	+	By facilitating the development of new waste management facilities and technologies, the policy may help to raise skills levels, although this is unlikely to be significant for the county's workforce as a whole.
16. Conserve and enhance the historic and built environment	+/?	The WCS requires developments to contribute positively to built and historic assets, and promotes good design and resource-efficient developments. The methodology to identify areas of search takes into account designations of historical value and therefore significant effects are unlikely in the main. However, four of the areas of search are near to designated assets, including one which is within a conservation area. Therefore adverse effects are possible in these areas and assessment and mitigation of effects should be a particular requirement for planning applications in these areas of search.
17. Reduce crime and antisocial behaviour	+	Educating communities about sustainable waste management may help to reduce littering and fly tipping although this will not be significant for crime levels in Worcestershire overall.
18. Ensure efficient use of land	+/-	The WCS requires developments to be in existing buildings or on previously developed sites, which will help to maximise reuse and avoid impacts on open spaces. It also protects the green belt from inappropriate development. However, some adverse effects are possible on greenfield/agricultural/green belt land although the effect for the county as a whole is unlikely to be significant. The WCS is also likely to help increase the supply of secondary aggregates and reduce demand for virgin mineral resources although there are opportunities within the WCS to strengthen this. Landfill to restore previously developed or derelict land is promoted, and to provide open space for communities.

8.2.1 Conclusions

Support is given to the waste hierarchy across much of the WCS, and a strong emphasis is placed on mitigating and adapting to climate change and on energy efficiency and generation. This will reduce the emission of greenhouse gases from waste management activities. However, stronger encouragement could be given to prioritise recycling and composting over residual waste treatment, otherwise continued improvement beyond the targets may fail to happen.

The spatial strategy will help to limit waste transport distances by locating facilities close to the main centres of population. However, the exact effects on waste transport are uncertain, because it is not known which of the large number of areas of search might be developed for waste management purposes, nor the type or capacity of facility which might be developed, all of which have an effect on the amount of waste transport required. Policies should require planning applications to demonstrate how a facility will be located to minimise the distance that waste is transported.

The WCS emphasises the protection and enhancement of natural, built and historic assets, although there is potential in the identified areas of search for adverse effects on biodiversity, air quality, historic assets, residential amenity, flood risk and open space, which should be a focus of assessment and mitigation at planning application stage.

The WCS is likely to give support to other sustainability objectives, particularly ensuring the efficient use of land, promotion of growth and innovation in the waste sector, and support for community responsibility for waste although not necessarily in Herefordshire. Promoting sustainable construction, higher energy and environmental standards in design and climate change adaptation will also support markets for new technologies.

8.3 CUMULATIVE EFFECTS

The SEA Directive requires assessment of an additional level of impacts in addition to straightforward direct impacts. These are specified as "secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative". The following approach has been taken to identifying such impacts.

A number of different types of impact are set out in European Commission guidance:

- separate developments causing the same impact – cumulative;
- different impacts acting together on a receptor eg air pollution and land take – cumulative;
- plan impacts which give rise to other indirect impacts – secondary; and
- different impacts which together give rise to yet another impact – cumulative and secondary.

There is therefore a need to consider both secondary and cumulative impacts in the appraisal. Secondary impacts were considered as an integral part of the main appraisal work, and this is indicated in the appraisal matrices in *Annex C* where impacts are either direct or indirect ie secondary. Certain other attributes are common to all types of impact: these are timescales (ie short, medium and long-term impacts), reversibility (ie permanent or temporary impacts) and whether the impacts are positive or negative. These attributes were also all considered as integral aspects of impact assessment, and this is

similarly indicated in the appraisal matrices in *Annex C*. Cumulative impacts are discussed in this section of the SA Report.

There are two types of situation which could give rise to cumulative impacts:

- the same effect arising from two or more different sources; and
- different effects where there is a relationship between the effects and potentially an interaction.

Synergistic effects are a type of cumulative impact. These are effects where the cumulative impact may be greater or smaller than the sum of the separate effects.

Cumulative impacts were considered in the appraisal in two ways:

- the potential for different developments to give rise to the same type of effect; and
- the potential for interaction between different types of effect.

In order to assess the cumulative impacts arising from all potential developments under the WCS, the appraisal considered the overall effect of the WCS as a whole on each of the SA objectives. The results of this are set out above in *Table 8.1* and *Section 8.2.1*.

The appraisal then considered the potential for effects arising from other plans and programmes which in combination with effects arising from the WCS may give rise to significant impacts. The results of the review of other plans and programmes and their potential to give rise to cumulative effects is set out in detail in *Annex E*. The findings are summarised below in *Table 8.2* and the conclusions are set out in *Section 8.3.1*

Table 8.2 Summary of Likely Significant Effects of WCS and Other Plans and Programmes on Receptors

	Resource use (energy, water, minerals)	Waste generation	Climate change	Road networks	Alternatives to road	Flooding	Land use	Air quality	Ecosystems	Open space	Built and historic environment	Opportunities for CHP
WCS	+	+	+/?	?	?	+	+	+	+/-	+	+?	+
Regional Economic Strategy	-/+	-/+	-/+	-/+			+	?				
Economic Strategy for Worcestershire 2010 – 2020	-/?	-/?	-/?	-/?			-	?				
South Worcestershire Development Plan Preferred Options and Proposed Significant Changes	-	-	-	-/+		?	+	?	?	?		+
Bromsgrove Draft Core Strategy 2	-	-	-	-/+	+		?	?		?		+
Redditch Revised Preferred Draft Core Strategy Document	-	-	-	-/+			?	?		-		
Wyre Forest Adopted Core Strategy	-	-	-	-/+		?		?				
Wyre Forest Site Allocations and Policies DPD Publication Version	-	-	-	-/+			?	?				
Wyre Forest Kidderminster Central Area Action Plan DPD Publication Version	-	-	-	-/+				?				
Third Worcestershire Local Transport Plan				+				+				
Herefordshire Unitary Development Plan		-										
Birmingham Core Strategy Consultation Draft				-/+								
Warwickshire Waste Core Strategy Publication Document		?		?								
Warwickshire Minerals Core Strategy Revised Spatial Options				?								
Gloucestershire Waste Core Strategy Focused Changes and Main Modifications and Additional Changes												
Shropshire Local Development Framework Adopted Core Strategy				?				?	?			
Solihull Draft Local Plan Pre-Submission Draft				-				?	?			
Stratford on Avon Local Development Framework Draft Core Strategy 2012				?				?	?			

8.3.1 Conclusions of Cumulative Impact Assessment

The following receptors have been identified as the most likely to be subject to cumulative effects. It should be noted that these receptors and their effects are all interrelated, for example effects on ecosystems are strongly related to air and water quality and land use, and effects on transport networks give rise to climate change and air quality effects. However, they have been selected on the basis that they are areas where the WCS is likely to have the impacts of greatest significance. Furthermore, all of the receptors have effects on and consequences for people.

- ***Resource use***. Several plans and strategies relevant to Worcestershire place a strong emphasis on economic and housing growth. This is likely to lead to increased resource use including energy, water and minerals, in order to facilitate the planned growth and development. However, the WCS will help to reduce the pressure on resource use through its positive effects on minimisation and recycling of waste and energy recovery, although the extent to which this will be able to offset the pressures of growth are not clear. There is also potential for the WCS to increase pressure on water resources in combination with the levels of growth planned for in other strategies, however the likely levels of consumption by waste facilities are unknown and development management policy requires developments to be water-efficient.

  Mitigation: It is recommended that the WCS gives greater support to the promotion of recycling by encouraging higher recycling of MSW, to support greater resource efficiency.

- ***Waste generation***. As with resource use, the growth and development expected to occur in Worcestershire is highly likely to lead to increased waste generation. The WCS includes measures to reduce waste generation in new development, although this is not likely to reduce significantly the effects of other plans and programmes.

  Mitigation: The County Council should press for continuous improvement in waste minimisation measures in Worcestershire, particularly through the Joint Municipal Waste Management Strategy, and for a strong emphasis on resource efficiency in all relevant plans and strategies.

- ***Climate change***. The strong emphasis in other plans and programmes on housing and economic growth is likely to lead to increased greenhouse gas emissions and pressure for land for new development. Both of these effects are likely to have climate change consequences by increasing the risk of climate change occurring and adding to pressures from impacts such as flood risk and increased surface run-off due to land take. Although the WCS will help to reduce the emissions from waste management activities, it will not be able to offset all of the emissions arising from growth in the county. It is also likely to add to land pressures through the need to seek

sites for new waste management facilities, in some areas with flood risk constraints.

Mitigation: Flood Risk Assessments should be undertaken for proposed development in sites in areas of search within Flood Zone 2.

- ***Transport networks.*** The planned housing and economic growth in the county are likely to lead to increased road travel. A number of measures are planned to tackle the predicted increase, including demand management, promotion of public transport, highways improvements and rail network improvements. This will help to reduce the demand for road space and alleviate congestion, although the number of vehicles on the roads is nevertheless likely to increase. The effect of the WCS on the need for waste transport distances is currently uncertain. However, the Vision and policy in the WCS aim to promote opportunities for more sustainable modes of waste transport, although there are few synergies with other plans in this respect. The effect of waste development on local congestion is less clear as the scale and type of development on any particular site are unknown, and particularly in the medium and longer term when the effects of planned improvements are likely to take effect but are unknown at this stage.

  Mitigation: Assessment of impacts on waste transport distances and network congestion should be undertaken in any planning application for waste development. The WCS currently requires applicants for development to demonstrate no unacceptable impacts on congestion, but does not require an assessment of waste transport distances.

- ***Flooding.*** Growth in housing and jobs in the county will require substantial areas of land to accommodate the planned levels of development. This could place pressure on areas affected by flood risk particularly Worcester, Kidderminster, Stourport, Bewdley, Evesham, Pershore and to a lesser extent Upton. All of these towns are also identified in the hierarchy of towns for waste facilities, and therefore there is the potential for cumulative effects on flood risk particularly in Worcester and Kidderminster which are at the higher levels of the hierarchy. However, the WCS places a strong focus on avoidance of flood risk, although some areas of search are within Flood Zone 2.

  Mitigation: Flood Risk Assessments should be undertaken for proposed development in sites in areas of search within Flood Zone 2.

- ***Land use.*** A number of plans and programmes relevant to Worcestershire support housing growth and economic development. This is likely to lead to increased pressure for available sites with which waste developments will have to compete. The emphasis for waste development is on the use of previously developed land, as it is for housing and economic development.

  Mitigation: None.

- ***Air quality.*** The main significant effects on air quality in the county are likely to arise from the increase in road traffic expected under a number of other plans and programmes (see above under transport networks). Measures to improve congestion may help to reduce the effect of increasing traffic on emissions, although the overall effect on emissions and air quality into the medium and longer term is uncertain. The effect of the WCS on air quality is also uncertain, mainly due to the uncertainty about likely emissions from developments but also uncertainty in possible effects on local congestion. These issues therefore need to be assessed in detail when developments come forward and appropriate avoidance or mitigation incorporated into the schemes. Policies in the WCS clearly require this.

  Mitigation: None.

- ***Ecosystems.*** There is the potential for cumulative effects on ecosystems arising from a number of plans and strategies, from the levels of housing and economic growth in the location of certain towns and also from specific developments at allocated sites. These effects are mainly linked to reductions in air quality. However, the likelihood of cumulative effects arising in combination with waste developments is unknown, due to the lack of detail about the scale and type of waste developments.

  Mitigation: Further assessment should be undertaken when more information is known about the nature of likely waste developments.

- ***Open space.*** Housing growth, particularly urban extensions which are planned for in other strategies, is likely to lead to a loss of open space which may be of value. The WCS focuses development on previously developed land, but several areas of search include currently undeveloped land. There is therefore the potential for cumulative effects on open spaces, particularly around Worcester and Kidderminster which are identified for significant levels of growth.

  Mitigation: Any planning applications which include the development of open space should be required to demonstrate that the land is not valuable open space.

- ***Combined Heat and Power.*** Levels of housing and economic growth planned for under various strategies could create opportunities for use of CHP in association with waste developments, particularly where urban extensions are envisaged. The use of CHP is promoted by the WCS.

  Mitigation: None.

8.4 RECOMMENDED MITIGATION

The following recommendations are made for mitigating the predicted adverse effects of the WCS, in the light of the conclusions reached in *Sections 8.2* and *8.3* and also drawing on the mitigation recommended in *Section 6.3*.

Table 8.3 Mitigation Recommendations

No.	Recommendation
1	Stronger incentives should be given to prioritise recycling and composting over residual waste treatment, for example by requiring applicants for recovery facilities to demonstrate that reuse and recycling have been "maximised" rather than "optimised" in policy WCS4.
2	Policies should require planning applications to demonstrate how a facility will be located to minimise waste miles, for example in policy WCS8.
3	Applications for waste development should clearly show how impacts on flood risk, air quality, biodiversity, historic assets, residential amenity and open space will be avoided or enhancements delivered, for those sites in areas of search with constraints.
4	The WCS should promote flood risk reduction and water quality enhancement where practicable (WCS10).

In addition to the above recommendations for the content of the WCS, the County Council should also press for continuous improvement in waste minimisation measures in Worcestershire, particularly through the Joint Municipal Waste Management Strategy. It should also include, or seek, a strong emphasis on resource efficiency in all relevant plans and strategies including at regional level.

8.5 UNCERTAINTIES AND RISKS

There are a number of areas where there are uncertainties about the likely impacts of the WCS. These are set out below.

Some of these unknowns are due to the current lack of certainty about the development which will take place as a result of the WCS. Being technology-neutral, the WCS does not specify the type of recycling, composting or recovery facility which is sought in order to meet the identified capacity gap. It also does not specify the size of facilities which are sought, notably for recovery facilities. This is left for industry to determine. This is despite the consideration of the issue of facility size at earlier stages of the WCS development, as set out in *Section 7.*

Policy WCS2 identifies a need for 283,500 tonnes of recovery capacity for MSW and C&I waste, although the WCS also suggests uncertainties about this figure. It indicates that this may mean two facilities will be required to provide this capacity. A planning application was recently approved by the Secretary of State for an energy from waste facility to treat 200,000 tpa, predominantly for the management of MSW. There is, as yet, no indication of

how the C&I waste might be recovered, nor of how the remaining capacity gap for recovery of MSW will be met.

The following are key areas where the likely impacts of the WCS are uncertain.

Air Quality

The main impacts will arise from emissions from waste facilities and transport, although the effects of transport will be small in comparison to the facilities themselves. The likely effect of developments on air quality is strongly dependent on the type and nature of developments which come forward, and any mitigation proposed, and is therefore unknown at this stage.

The Environmental Impact Assessment[1] for the proposed EfW facility at Hartlebury reports that the facility would have a negligible impact on air quality during operation, and low impacts during construction. However, additional facilities will be required to meet the identified capacity gap for recovery, recycling and composting, therefore the effects of the WCS as a whole are uncertain as their type, scale and location are unknown.

Waste Transport

The location of facilities will have a strong influence over waste transport distances, as will the methods by which waste is managed and the capacity, number and distribution of facilities. The overall balance of impacts on transport over time is therefore unclear, as many of these aspects of waste development in Worcestershire are still unknown. Monitoring is needed to better understand the amount of transport required for managing waste in Worcestershire and the scale of its contribution to levels of traffic overall.

Recommendations are made in *Section 8.4* for mitigation which would reduce the uncertainty over the effects on waste transport.

The options appraisal[2] which accompanied the planning application for the EfW at Hartlebury made an assessment of likely transport distances, and estimated that the development would result in 1,203,000 km to be travelled by waste vehicles per annum. However, additional facilities will be required to meet the identified capacity gap for recovery, recycling and composting, therefore the effects of the WCS as a whole on transport are uncertain as their type, scale and location are unknown. Furthermore, it must be remembered that these movements will replace existing waste vehicle movements and not be in addition to them.

[1] *Proposed Development of an Energy from Waste Facility on Land at Hartlebury Trading Estate: Environmental Statement Volume 3 Non Technical Summary*, Mercia Waste Management, April 2010

[2] *Hereford and Worcester Residual Waste Treatment Options Appraisal*, Fichtner Consulting Engineers, April 2010

Greenhouse Gas Emissions

In order to estimate levels of greenhouse gas emissions, it is necessary to know precise information about waste management methods, including waste treatment, facility sizes and about likely waste transport distances. A more detailed, quantified assessment of emissions has not been possible as these aspects are still unknown.

The Environmental Impact Assessment[1] for the proposed EfW facility at Hartlebury reports that the facility would result in a reduction in greenhouse gas emissions of 7361 tonnes of CO_2 equivalents per annum. However, additional facilities will be required to meet the identified capacity gap for recovery, recycling and composting, therefore the effects of the WCS as a whole are uncertain as their type, scale and location are unknown, although the net effect of all these types of facility should be further reductions in greenhouse gas emissions.

Biodiversity

The effect on biodiversity is strongly dependent on site-specific circumstances, and also on the nature of developments and opportunities for mitigation. As yet there is insufficient information available about the scale and nature of developments and the likely effects on nature conservation value. The WCS has been amended to take account of the findings of the Habitats Regulations Assessment and therefore significant effects on European designated sites are unlikely. However, it has not been possible to assess the effect on biodiversity more generally. Insufficient information is available about undesignated biodiversity, existing local air quality and about the likely effects of facilities and waste transport on air quality.

Water Resources

Likely levels of water consumption are unknown, and dependent on particular technologies and design of facilities. Severn Trent Water's Water Resource Management Plan[2] indicates that water resources are under pressure in the Severn resource zone including groundwater around Bromsgrove and Kidderminster. The analysis shows that the area continues to face a long-term supply/demand risk in the Severn zone and that the risk worsens over the period to 2035. By 2035 the supply shortfall is predicted to be around 145 Ml/d.

[1] *Proposed Development of an Energy from Waste Facility on Land at Hartlebury Trading Estate: Environmental Statement Volume 3 Non Technical Summary*, Mercia Waste Management, April 2010

[2] *Water Resources Management Plan Final Version*, Severn Trent Water, June 2010

9 IMPLEMENTATION

9.1 LINKS TO OTHER TIERS OF PLANS AND STRATEGIES AND THE PROJECT LEVEL

9.1.1 Other Plans and Programmes

The WCS has links to other plans and strategies, at higher levels or county level, which set the overarching policy context. These have already been described in *Section 3.3*.

The WCS also has links with plans at lower tier authority level, notably those for waste collection arrangements. Implementation of the WCS will be strongly dependent on the nature and performance of waste collection activities by the individual districts, boroughs and city to enable the WCS to deliver on some of its objectives. This is particularly the case for achievement of recycling and composting performance and meeting the capacity targets for recycling and composting, recovery and landfill. The authorities need to work in partnership to ensure that plans and actions are coordinated to ensure that targets can be met in the most cost-efficient way.

9.1.2 Projects

The WCS sets the framework for the development consent of projects. It will achieve this in part through development management policies which list a range of issues which developers will be required to take into account when submitting planning applications for waste management facilities.

In addition, the monitoring recommendations presented below include data to be required from site operators on an annual basis to assess the ongoing impact of waste management facilities.

9.2 PROPOSALS FOR MONITORING

As required by the SEA Directive, a number of recommendations are made for indicators to monitor the likely significant impacts of the WCS. These are set out in *Table 9.1* corresponding to the relevant impacts identified and summarised in *Section 8.2.1*.

One of the aims of monitoring as specified by the SEA Directive is to identify unforeseen adverse effects in order to be able to take appropriate remedial action. To enable this to be done, recommendations are also made in *Table 9.1* for monitoring potential sustainability impacts which are not expected to occur as foreseen by the appraisal.

An Annual Monitoring Report will be produced to monitor the implementation of the WCS, and the recommendations given below for monitoring should be incorporated within this. Worcestershire County

Council should report annually on the following issues and suggested indicators.

Table 9.1 Monitoring Recommendations

Tonnages and % of waste arisings reused, recycled, composted, used for energy recovery, landfilled (potential links to NI 192 and 193):

- MSW
- C&I
- C&D
- Hazardous waste

MW of energy generated by:

- Thermal treatment;
- Anaerobic digestion;
- Landfill.

MW of CHP capacity.

Facility catchments and transport:

- Sources and destinations of waste, by quantity and type;
- Tonne-kilometres travelled by waste;
- No. of vehicle movements to and from sites;
- % of waste transported by different modes.

No. of developments with climate change mitigation and adaptation measures incorporated, by type of measure

Estimated greenhouse gas emissions from waste treatment facilities

No. of developments affecting:

- biodiversity or land of nature conservation value;
- landscape;
- geodiversity;
- congestion;
- historic assets.

Compliance/non-compliance with permit conditions:

- Water discharges;
- Air emissions: NOx; SO_2; PM10; CO_2; methane; other pollutants of public concern (dioxins and furans, PCBs) (potential links to NI 194);
- Pollution episodes.

Quality of land converted to waste uses, annual no. of hectares of:

- rural, urban or urban fringe;
- previously developed or undeveloped;
- green belt;
- amenity value;
- flood zones 2, 3a, 3b.

No. of developments providing integral recycling facilities

% of population within:

- 10km of a Household Recycling Centre;
- 5km of a recyclable collection point.

The indicators required to support the monitoring fall into four broad categories according to their likely source:

- data which is already collected by the County Council or lower tier authorities;
- data which WCC will need to collect;

- data which is collected by the Environment Agency; and
- data which needs to be collected from waste management operators.

10 NEXT STEPS

10.1 ADOPTION

The next step is for the Council to decide whether to adopt the WCS. This will be considered at the Cabinet meeting on 27 September 2012 and at the meeting of the Full Council in November 2012. If the Waste Core Strategy is adopted it will become part of the 'development plan', which means that it will be used to make decisions about all planning applications in Worcestershire. It will also replace the existing Structure Plan policies that relate to waste.

A Post Adoption Statement has been produced for the SA to show how the SA has influenced the development of the WCS and to indicate the monitoring arrangements which will be put in place. This is available as a separate document from this SA Report.